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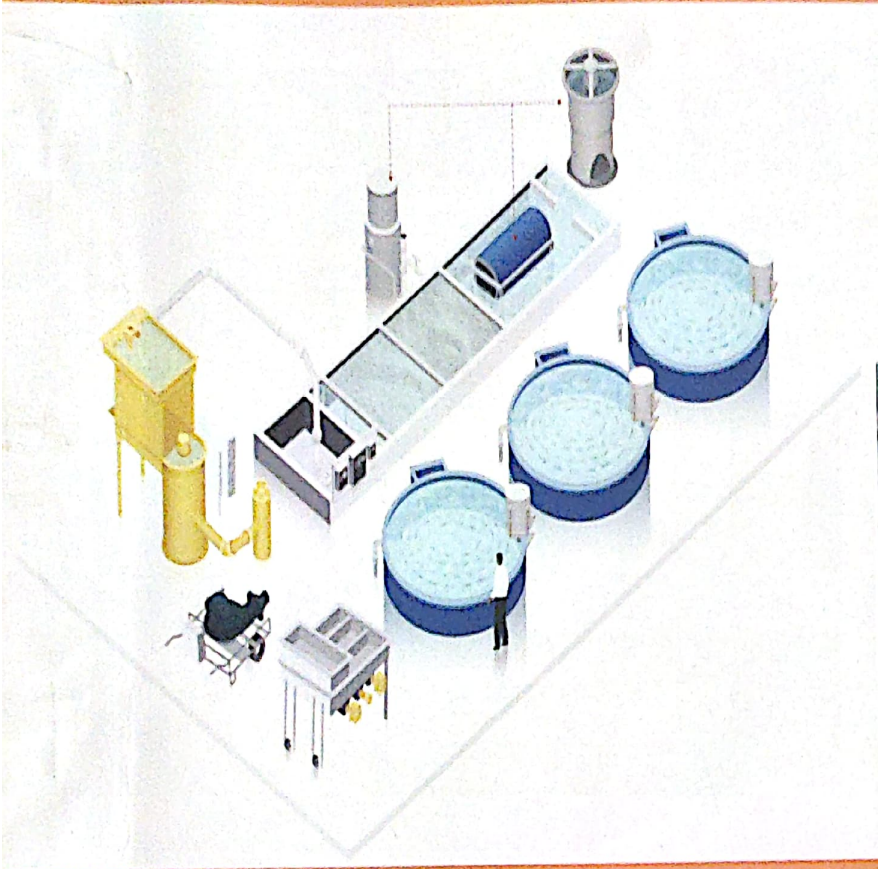
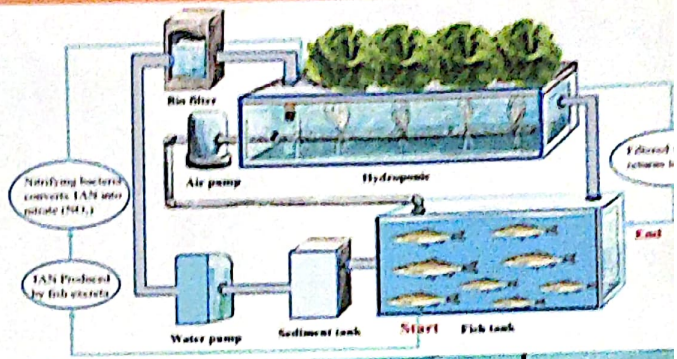
UGC SPONSORED

NATIONAL SEMINAR ON

RECENT DEVELOPMENTS IN AQUACULTURE MANAGEMENT (NSRDAM-2025)

19th - 20th February, 2025





SOUVENIR

Organized by

Department of Zoology and Aquaculture
University College of Sciences
ACHARYA NAGARJUNA UNIVERSITY
Nagarjuna Nagar - 522 510, Guntur Dist. A.P., India.

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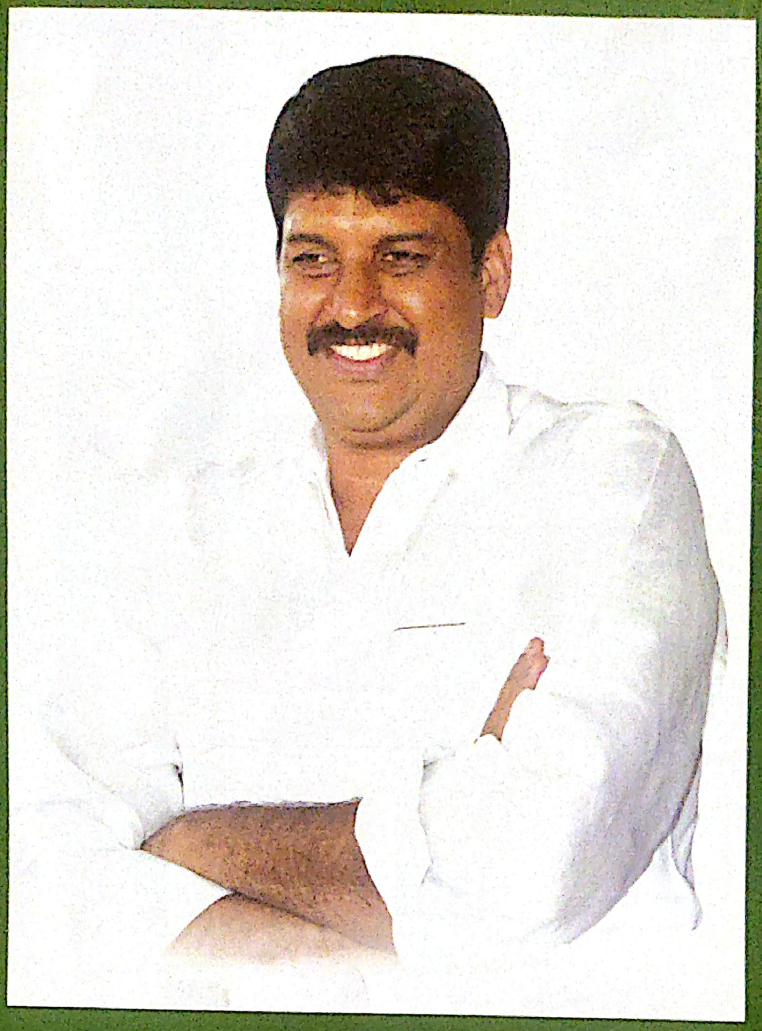

FOUNDER & MANAGING DIRECTOR MESSAGE

VISION & MISSION

I started my career as a shrimp/fish farmer, hatchery operator and shrimp exporter. Today I own and manage around 500 acre farming, 3 billion shrimp seeds, more than 300Kg and more per day worms production and export capacity of 10000mt shrimps.

Personally I sustained huge crop failure and revived in culture due to scientific approach, standard practice and bio secured concept measures.

My vision & mission is to help the aqua industry for more success and sustainablity.

UGC-Sponsored

National Seminar

on

Recent Developments in Aquaculture Management (NSRDAM 2025)

(19th – 20th February, 2025)

ABSTRACTS

Department of Zoology & Aquaculture

Acharya Nagarjuna University
Nagarjuna Nagar – 522 510.
Guntur, Andhra Pradesh, India.

FOREWORD

It is with great pleasure that we welcome you to the National Seminar on *"**Recent Developments in Aquaculture Management (NSRDAM 2025)**."* This seminar is a pivotal initiative aimed at fostering research, and innovation in aquaculture - a sector that has witnessed rapid advancements in technology, sustainability, and productivity. This event seeks to provide an interdisciplinary platform where scientists, researchers, academicians, and industry professionals can exchange ideas, address challenges, and explore the future of aquaculture.

Aquaculture has emerged as one of the most significant contributors to global food security and economic development. With wild fish stocks declining due to overfishing and environmental changes, the role of aquaculture in meeting the growing demand for seafood has never been more critical. The sector has experienced exponential growth over the past few decades, making significant strides in improving yield, reducing environmental impact, and incorporating sustainable practices. The global aquaculture industry is continuously evolving with scientific breakthroughs in genetics, biotechnology, water quality management, disease control, and Quality feed.

The adoption of novel technologies, such as biofloc systems, recirculating aquaculture systems (RAS), and the use of probiotics and prebiotics, has redefined how aquaculture is practiced. The use of automation, artificial intelligence, and the Internet of Things (IoT) in farm operations has enhanced efficiency, productivity, and resource management. This seminar has been meticulously designed to cover a broad spectrum of contemporary issues and innovations in aquaculture, including sustainable aquaculture practices, disease prevention and health management, technological innovations, legal and environmental challenges, and the economic and social aspects of aquaculture.

The primary objective of this seminar is to bridge the gap between research advancements and industry applications, ensuring that new knowledge translates into practical benefits for aquaculturists and stakeholders. It aims to create awareness of recent developments in aquaculture technology and management, promote sustainable practices, facilitate interaction between researchers, policymakers, and industry professionals, and encourage young researchers and students to engage in high-quality research.

The future of aquaculture lies in the integration of cutting-edge research with practical applications. As global challenges such as climate change, water scarcity, and food security continue to shape the agricultural and aquaculture landscape, interdisciplinary collaboration becomes imperative. Research institutions, industries, and policymakers must work hand in hand to ensure sustainable growth and resilience in the sector. This seminar serves as a catalyst for fostering collaborations between academia and industry, paving the way for groundbreaking innovations and transformative research. The deliberations and findings from this event will contribute significantly to shaping the future of aquaculture in a way that is both productive and environmentally responsible.

We extend our heartfelt gratitude to all participants, speakers, and researchers for their valuable contributions to this seminar. May this seminar inspire a new wave of scientific curiosity, technological innovation, and collaborative research, driving aquaculture towards a more sustainable and prosperous future.

Prof. P.V. Krishna	**Prof. K. Sumanth Kumar**	**Prof. V. Venkata Rathnamma**
Organizing Secretary	Seminar Co- Director	Seminar Director

ACHARYA NAGARJUNA UNIVERSITY

Nagarjuna Nagar, Guntur – 522510, Guntur Dist., A.P, INDIA

NAAC – 'A^{+}' GRADE

VICE-CHANCELLOR'S MESSAGE

It's a great pleasure that I extend my heartfelt congratulations to the Department of Zoology and Aquaculture, Acharya Nagarjuna University for organizing the seminar on 'Recent Advances in Aquaculture Management.' Your commitment to advancing knowledge and fostering interdisciplinary research is truly commendable. This seminar serves as a platform for enriching dialogue, and I am confident that it will contribute significantly to the academic and scientific community. I applaud the department's efforts and wish all the participants a successful and insightful experience.

I congratulate the director of seminar and wish the seminar a grand success.

K. Gangadhara Rao 25.1.25

Vice-chancellor
(Prof. K. Gangadhara Rao)

ACHARYA NAGARJUNA UNIVERSITY

Nagarjuna Nagar, Guntur – 522510, Guntur Dist., A.P, INDIA

NAAC – 'A^{+}' GRADE

RECTOR'S MESSAGE

It's my great pleasure to congratulate the Department of Zoology and Aquaculture, Acharya Nagarjuna University on organizing the seminar on "Recent Advances in Aquaculture Management" during 19th to 20th February, 2025. This initiative highlights the department's dedication to advancing research and promoting knowledge exchange in crucial areas of aquaculture. I commend their efforts in bringing together experts to discuss these pressing topics, and I am confident that this seminar will lead to valuable insights and collaborative opportunities. Wishing the department continued success in all their endeavours.

I convey my good wishes for the success of the National Seminar.

Rector
(Prof. K. Ratna Shiela Mani)

ACHARYA NAGARJUNA UNIVERSITY

Nagarjuna Nagar, Guntur – 522510, Guntur Dist., A.P, INDIA

NAAC – 'A^{+}' GRADE

REGISTRAR'S MESSAGE

I extend my sincere congratulations to the Department of Zoology and Aquaculture for organizing the seminar on 'Recent Advances in Aquaculture Management.' This event reflects the department's dedication to advancing scientific research and fostering academic excellence. Such initiatives play a crucial role in promoting knowledge sharing and collaboration. I am confident that this seminar will provide valuable insights and contribute to further progress in these important fields. Best wishes for a successful and impactful seminar.

I also hope that this seminar provides an opportunity to the young students & Research Scholars to interact with the eminent personalities. I am sure that discussion and deliberation will help the young researchers in designing and execution of quality research.

I congratulate the Director of the Seminar Prof. V. Venkata Ratnamma and the entire team for organizing this seminar.

Best Wishes!

Registrar
(Prof. G. Simhachalam)

ACHARYA NAGARJUNA UNIVERSITY

Nagarjuna Nagar, Guntur – 522510, Guntur Dist., A.P, INDIA

NAAC – 'A^{+}' GRADE

PRINCIPAL'S MESSAGE

I sincere hearty congratulations Department of Zoology and Aquaculture, Acharya Nagarjuna University is organizing a two-day National Seminar under the leadership of Prof. V. Venkata Rathnamma, Head of the Department during the February 19-20, 2025 on the theme Recent Developments in Aquaculture Management.

In my opinion conducting such seminars will be a motivating factor for the current batch students of both M.Sc. Aquaculture, and M.Sc. Zoology and Aquaculture students. These students may get the opportunity to witness several stalwarts in this field of scientific research. It is evident that these students will be inspired and benefited by the lectures delivered by the eminent personalities. I am quite confident that the seminar will be highly successful in suggesting more fruitful solutions to the society pertaining to these issues.

I wish the seminar a grand success.

14-02-2025

Principal
University college of Sciences
(Prof. K. Veeraiah)

PROFILE

The Department of Zoology was established in 1967 and holds the distinction of being the first in India to introduce Limnology as a specialization. Over the years, the department has made significant contributions to the field of basic Limnology through diverse research initiatives. While specializing in Biodiversity, the department has extensively studied freshwater animal groups in the lower deltaic region of the River Krishna. With the rapid expansion of aquaculture in the coastal districts of Andhra Pradesh, which fall within the University's jurisdiction, the department has broadened its research scope to meet the needs of fish farmers. Other key research areas include Toxicology, Immunology, and the emerging field of Stygobiology. To address these growing demands, the department proposes to introduce a specialization in Applied Limnology. This initiative aims to not only expand research activities but also support local fish farmers effectively.

Thrust Areas

Immunology: Study of pathways involved in natural and acquired immune mechanisms in disease progression. Research on diseases like malaria, diabetes, cancer, and autism using small animal models. Assays for antibody and cell-mediated immune responses in experimental animals. Investigating the role of nutrition in enhancing immune health, considering the current shifts in food habits and lifestyles.

Aquatic Toxicology: A regionally relevant theme designed to assist aquaculture farmers as part of a lab-to-land program. Toxicological studies and environmental impact assessments in the coastal districts of Andhra Pradesh.

Biodiversity: Research on zooplankton, benthos, and fish biodiversity. Taxonomic studies on parasitic helminths, nematodes, and acanthocephalans.

Aquaculture: Exploration of recent advancements in aquaculture management. Studies focusing on fish and prawn culture production systems, including water quality, nutrition, feed, and disease management. Addressing environmental issues in aquaculture production systems.

Research Contributions (2003-2024)

Research Papers Published: 650

Average Impact Factor: 2.512

Books Published: 51

M.Phils Awarded: 111

Ph.D. Awarded: 200

ORGANIZING COMMITTEE

Chief Patron:
Prof. K. Gangadhara Rao
Vice-Chancellor (I/c), ANU

Patrons:
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Rector (I/c), ANU
Prof. G. Simhachalam
Registrar (I/c), ANU
Prof. K. Veeraiah
Principal, University College of Sciences, ANU

Seminar Director:
Prof. V. Venkata Rathnamma
Professor & Head
Dept. of Zoology & Aquaculture, ANU

Seminar Co- Director:
Prof. K. Sumanth Kumar, Dept. of Zoology & Aquaculture, ANU

Organizing Secretary:
Prof. P. V. Krishna, Dept. of Zoology and Aquaculture, ANU

Seminar Treasurer:
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Prof. K.Sunita, Dept. of Zoology & Aquaculture, ANU
Prof. M. Jagadish Naik, Dept. of Zoology & Aquaculture, ANU

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Prof. P. Sankar Rao, Director, Coastal Aquaculture Authority, Govt. of India.
Prof. P. Hari Babu, College of Fishery Science, Muthukur, A.P.
Prof. P. V. Seshaiah, Chairman & Managing Director, PVS Group, A.P.

Reception committee:

Prof. V. Venkata Ratnamma

Ch. Nikitha

P. Sahaja

N. Leelarajeswari

Registration committee:

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A. Gopal: 7893022212

D.C. Sindhu Sree

Shaik Shaheen

Technical committee:

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M. SudhendraBabu

P. Dedeepya

A. Keerthana

Decoration committee

Prof. P. Padmavathi

G. Sreeteja

M. Satya Priyanka

M.P. Julie

Accommodation & Transportation committee

Dr. N. Gopal Rao

R. Sai Vamsi : 9154622534

N. Venkata Murali: 9493074917

A. Dileep Babu: 8897667840

A. Keerthana

TA & DA committee:

Prof. K. Sunita

T. Rahul Sandeep: 9652607154

G. Sreeteja

Food and snacks committee

Prof. M. Jagadish Naik

A. Dileep Babu: 8897667840

M. Venkata saikumar

B. Harshavardhini

Certificate committee

Prof. K. Sumanth Kumar

Dr. A. Aswartha Narayana

A. Gopal: 7893022212

N. Leelarajeswari

Y. Amani

Management committee

B.V.L Aradhya Sharma

D.C. Sindhu Sree

Shaik Shaheen

R. Sai Vamsi: 9154622534

V. Mohan Krishna

Supporting Student Committee

For Accommodation /Transport below are the students list

Manikanta

Sasi Kiran

Rajesh

Hema Sundar

Jaykiran

For Food and Snacks committee the students list

Sr. Zoology

Dinesh

Ramu

Prasanth

Jr. Aquaculture

Vardhana Babu

John Satvik

Aquaculture II year

10. Sasi kiran

11. Venkatesh

12. Abhinav

13. Jahnavi

For management committee

zoology 2 year

Bheeshma

sunny babu

Kusuma

Aquaculture 2year

Glory

zoology 1year

Karishma,

Joshua

For TA and DA committee

From Zoology I year

1. David

2. Durga Prasad

3. Subba Lakshmi

Aquaculture I year

4. Manikanta

5. Jaya kiran

6. Parnika

Zoology II year

7. Dinesh

8. Vijay

9. Anantha Lakshmi

For Registration and certificate committee

zoology 2nd year

Dakshayani

Muskaan

Gowthami

Syamulu

Akhilesh

zoology 1st year

Sukeerthi

Karishma

Veeranjayaneyulu

Ajay

INVITED LECTURES

Production of Bioflocs in Shrimp Culture: A Sustainable Approach to Aquaculture

Prof. M. Srinivasulu Reddy

Department of Zoology & Animal Biotechnology
Sri Venkateswara University
Tirupati – 517 502
Email.profmsrsvu@gmail.com

Abstract

Biofloc Technology (BFT) has emerged as a revolutionary approach in shrimp aquaculture, providing a sustainable solution to water quality management, disease control, and feed optimization. This technology harnesses the power of microbial communities to assimilate nitrogenous waste, improving water quality while serving as a natural feed source for shrimp. The adoption of BFT significantly reduces the dependency on costly commercial feeds, lowering overall production expenses. Additionally, biofloc systems contribute to disease mitigation by promoting the growth of beneficial microorganisms that suppress pathogens. The presentation explores the principles, benefits, and challenges of BFT in shrimp culture, focusing on its role in improving production efficiency, environmental sustainability, and economic feasibility. Furthermore, the review highlights recent advancements in biofloc-based aquaculture, including innovative microbial enhancement strategies, integration with Recirculating Aquaculture Systems (RAS), and the application of artificial intelligence for system monitoring. Despite certain challenges such as management complexity and potential water quality issues, on-going research and technological innovations continue to refine BFT for broader commercial adoption. The review concludes that BFT holds great promise as a sustainable, cost-effective, and environmentally friendly approach to modern shrimp farming, paving the way for improved productivity and ecological balance in aquaculture systems.

Marine Algae: A Potential Therapeutic Agent for Cyclophosphamide-Induced Immunosuppression in Rats

Lokanatha Valluru[1*], Neelima A[1], and Kajal Chakraborty[2]
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[2]Marine Biotechnology Fish Nutrition and Health Division, Central Marine Fisheries Research Institute, Ernakulum, North P.O., P.B.No.1603, Cochin-682018, Kerala.
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ABSTRACT

Background: Marine algae are a trove of unique bioactive compounds proven to have pharmacological properties against various diseases. Though they are only a few works of literature available on marine algae, *Ulva linza* regarding anti-proliferative, anti-microbial activity, anti-hepatotoxic nature, and growth supplement, studies on immune-enhancement activity are scarce. Our research is to find the best alternative to the commercially available immune-enhancing drugs in the market. This research mainly focuses on marine extract and its bioactive leads and its immune-enhancing properties.

Methods: Aqueous extracts of *Ulva linza, pure compound, and* Nanoparticle tagged *Ulva linza*were obtained from Central Marine Fisheries Research Institute (CMFRI). Quantitative and Qualitative Screening was performed using different concentrations of marine extracts, pure compound and Nanoparticle tagged pure compound for 11 days. For the next three days, all rats were given Cyclophosphamide to induce immunosuppression. On the 15th day, the animals were anesthetized and sacrificed. blood samples were collected from the retro-orbital plexus for analyzing hematological parameters. Immunoglobulin concentration is estimated in serum. Vital organs were examined for antioxidant, immune, and histological parameters.

Results: Administration of nanoparticle-tagged *Ulva linza* at 0.6 mg/kg BW significantly ($P< 0.05$) increased complete blood count, immunoglobulin levels, and antioxidant activity compared to the cyclophosphamide-induced immunosuppressed group. Additionally, nanoparticle-tagged *Ulva linza* enhanced immunolocalized cell populations more effectively than other treatment groups.

Conclusion: The study demonstrates that nanoparticle-tagged *Ulva linza* possesses potent immunomodulatory effects, restoring hematological, immunoglobulin, and antioxidant levels in immunosuppressed rats. These findings support its potential use in managing immune disorders. Further research is needed to elucidate the underlying mechanisms and identify the specific bioactive compounds responsible for its immuno-enhancing effects.

Keywords:*Ulva linza*, marine algae, immunosuppression, cyclophosphamide, antioxidants, immunomodulation

Enterocytozoonhepatopenaei (EHP) infection in cultured shrimp : current status

Prof. P JANAKIRAM
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Disease is a major limiting factor in the production of cultured shrimp. Hepatopancreatic microsporidiosis (HPM) is caused by *Enterocytozoonhepatopenaei* (EHP), first characterized in 2009 as a rare infection of the black tiger shrimp *Penaeusmonodon*. Later, it was also found to infect exotic *Penaeusvannamei* imported for cultivation in Asia. HPM is not normally associated with shrimp mortality, but with significant growth retardation. It is an obligate intracellular parasite of shrimp belonging to the phylum Microsporidia and transmitted through spores which are Oval-shaped, monokaryotic and measure approximately 0.7 to 1.1 μmwith 5-6 coils of polar filament.The infected epithelial cells of the hepatopanreasswell and subsequently rupture to release mature spores, which facilitates the autoinfection of other HP cells or the release of mature spores into the environment through feces.Mature spores can be viable for up to 6 months in fecal pellet and dried carcasses.The total production loss calculated per crop due to EHP was found to be 0.77 million tons worth US$ 567 million (2024).There is no effective treatment for EHP so far. However, Biosecurity and prophylactic measures including sterilisation of input water, quarantine of brood stock, use of vaccines, probiotics, and bacteriophages are suggested including disinfection of ponds with quick lime @ 6,000 kg/ha or >15 ppm KMnO4 or >40 ppm chlorine to inactivate spores in the soil. Screening of brooder, avoidanceof live polychaetes, clams, oysters, etc. as feed for broodstock.Treatment of water bodies with Calcium hypochlorite at the concentration of 18 mg/l before stockingis advised.

Key words: Shrimp, *Enterocytozoon*,Microsporidiosis, Retarded growth, Spores,

ROLE OF AQUATIC QUARANTINE FACILITY (AQF) IN QUARANTINING OF *P. VANNAMEI* AND SUPLLIMENT FOR STEADY GROWTH OF SHRIMP PRODUCTION IN INDIA

Babu rao[1], Arasu VS[1], Lakshmi Narayana K[1], Sateeshkumar K[1],
Remany MC[1], Anup Mandal[2] and Kandan S[2]

Rajiv Gandhi Centre for Aquaculture (RGCA)
(MPEDA, Ministry of Commerce & Industry, Government of India)
Aquatic Quarantine Facility, TNFDC Hatcherycomplex,
Beach road, Kapaleeswaranager, Neelankarai, Chennai, Tamil Nadu, India
**Corresponding author; e-mail: babuvincy.rgca@gmail.com*

Rajiv Gandhi Centre for Aquaculture (RGCA) in Tamil Nadu, India has been engaged in disseminatingthe improved technologies developed for diversified aquaculture at its various projects to the Indian aquaculture sector for overtwo decade.Indian aquaculture is shrimp centric. This study was carried out to assess the impacts by RGCA - AQF in A state-of-the-art Biosecure Aquatic Quarantine facility with a capacity to quarantine over has been established at Neelankarai in Chennai. It is the only one of its kind in the world.AQF renders the best service to the shrimp industry by its holistic mode of bio-security approach and stringent disease screening protocols which is vital for the industry's sustainability of the country. The export dollar value of farm reared shrimp has increased from 80,000 tons in 2009 to more than 1.0lakh MT(including monodon) 2023-2024 which reflects the impressive growth of the industry and the same being continued.

The establishment of AQF helped to enhance the production of seed, feed, and other related consumables required for hatchery and farm operations, thus substantially serving for the industrial growth. AQF catalyzed the economic up-liftment of the coastal community by generating vast employment opportunities.AQF plays a key role in boosting shrimp production and thereby contributing to enhance the export revenue of the country.anddiscuss about their significant impact on Indian aquaculture sector.

Key words: Aquatic Quarantine Facility (AQF),Biosecure,Shrimp and aquaculture production.

Themes: AQF helped to enhance the production of seed, feed, and other related consumables required for hatchery and farm operations, thus substantially serving for the industrial growth. AQF catalyzed the economic up-liftment of the coastal community by generating vast employment opportunities.

MANGROVE ECOSYSTEM: IMPLICATIONS ON AQUACULTURE, SILTATION, MICROENVIRONMENTS, PLASTIC AND SEWAGE POLLUTION

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The geomorphological features viz., terrestrial, and aqueous (freshwater, brackish and marine)are further divided into various microhabitats. All these habitats provide nursery grounds (niche) for different organisms. The life originated on the earth approximately 3000 million years ago. Human origin is also undoubtedly has taken place on the earth 2 my ago. Since then, after the human civilization, the search for human food particularly aquatic food has gained manifold. Among these, aquaculture takes its prominent place. India has a coastal length of 7,500 km (approx.), in which, Andhra Pradesh has a coastal length of 975 km approximately. The aquaculture industry has a great potential as far as Andhra coast is concerned.

Aquaculture, also known as aquafarming, is the controlled cultivation (farming) of aquatic organisms such as fish, crustaceans, molluscs, algae and other organisms of value such as aquatic plants (ex. lotus). Aquaculture involves cultivating freshwater, brackish water, and saltwater populations under controlled or semi-natural conditions and can be contrasted with commercial fishing. Aquaculture is also a practice used for restoring and rehabilitating marine and freshwater ecosystems. Mariculture, commonly known as marine farming, is aquaculture in seawater habitats and lagoons, as opposed to freshwater aquaculture. Pisciculture is a type of aquaculture that consists of fish farming to obtain fish products as food.

Aquaculture can also be defined as the breeding, growing, and harvesting of fish and other aquatic plants, also known as farming in water. It is an environmental source of food and commercial products that help to improve healthier habitats and are used to reconstruct the population of endangered aquatic species. Technology has increased the growth of fish in coastal marine waters and open oceans due to the increased demand for seafood.

Aquaculture can be conducted in completely artificial facilities built on land (onshore aquaculture), as in the case of fish tank, ponds, aquaponics or raceways, where the living conditions rely on human control such as water quality (oxygen), feed or temperature. Alternatively, they can be conducted on well-sheltered shallow waters nearshore of a body of water (inshore aquaculture), where the cultivated species are subjected to relatively more naturalistic environments; or on fenced/enclosed sections of open water away from the shore (offshore aquaculture), where the species are either cultured in cages, racks or bags and are exposed to more diverse natural conditions such as water currents (such as ocean currents), diel vertical migration and nutrient cycles.

Mariculture is the cultivation of marine organisms in seawater, variously in sheltered coastal waters (inshore), open ocean (offshore), and on land (onshore). Farmed species include algae (from microalgae (suchas phytoplankton) to macroalgae (such as seaweed); shellfish (such as shrimp), lobster, oysters), and clams, and marine finfish.

Integrated multi-trophic aquaculture (IMTA) is a practice in which the byproducts (wastes) from one species are recycled to become inputs (fertilizers, food) for another. Fed aquaculture (for example, fish, shrimp) is combined with inorganic extractive and organic extractive (for example, shellfish) aquaculture to create balanced systems for environmental sustainability (bio-mitigation), economic stability (product diversification and risk reduction) and social acceptability (better management practices).Multi-trophic refers to the incorporation of species from different trophic or nutritional levels in the same system.

Un-crewed vessels, like remotely operated underwater vehicles (ROV) and autonomous underwater vehicles **(**AUV), are now being used in aquaculture in various ways, such as site planning, cage or net inspection, environmental monitoring, disaster assessment, and risk reduction. The use of uncrewed vessels aims to increase safety, efficiency, and accuracy of aquaculture operations. Aquaculture is a multi-million-dollar business that relies on net and cage maintenance. Inspections used to be conducted by divers manually inspecting the nets, but uncrewed vessels are now being used to conduct faster and more efficient inspections

Plastic pollution,Aquaculture produces a range of marine debris, depending on the product and location. The most frequently documented type of plastic is expanded polystyrene, used extensively in floats and sea cage collars. Other common waste items include cage nets and plastic harvest bins. These days microplastics are posing dangerous threats to aquatic organisms.

In the last 15 years, several studies investigated the effects of domestic contamination in mangrove ecosystems, however, only few have recognized mangrove fauna species as effective bioindicators and bio-monitors of anthropogenic contamination.This study was created to discover how consumptive waste affects the bio-turbation processes within the mangrove ecosystems and therefore, indirectly, the health of the mangroves.

Sediment from abandoned aquaculture farms can remain hypersaline, acidic and eroded. This material can remain unusable for aquaculture purposes for long periods thereafter. Various chemical treatments, such as adding lime, can aggravate the problem by modify the physicochemical characteristics of the sediments. In this paper, the intricacies of Geology and implications of siltation, plastic and swage pollution particularly in the mangrove ecosystem with regard to aquaculture is presented.

MOLECULAR IDENTIFICATION, TYPING AND TRACKING OF VIBRIO HARVEYIIN AQUACULTURE SYSTEMS: CURRENT METHODS IN ANDHRA PRADESH

Dr. P. VEERABRAMHACHARI

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Vibrio harveyi is an economically significant pathogen for the aquaculture industry and methods to identify, type and track V. harveyi-related populations are therefore of interest. Due to phenotypic similarities and genome plasticity, traditional phenotypic identification and typing methods are not always able to resolve V. harveyi from closely related species. This review provides an overview and evaluation of molecular methods currently used to identify and type V. harveyi related species in taxonomic and epidemiological studies and presents prospects and challenges for developing molecular methods for direct detection of V. harveyi in complex samples. Pathogenicity of V. harveyi has been related to a number of factors including secretion of extracellular products (ECP) containing substances suchasproteases, haemolysins, andlipases, lipopolysaccharide,andabacteriocin-likesubstance. Dueto the economic importance of V. harveyi infections, there is considerable interest in methods to identify, typeand trackV.harveyi-related populations associated with marine reared animals. Identification of V. harveyi strains can be a challenging task since species within the Harveyi clade (V. harveyi, Vibrio campbellii, Vibrio alginolyticus, Vibrio rotiferianus, Vibrio parahaemolyticus, Vibrio mytili and Vibrio natriegens) have a very high degree of both genetic and phenotypic similarity. Bacterial typing systems detect differences in the phenotypic or genotypic characteristics of strains, and based on their resolution power can be used to distinguish genera, species or strains. Bacterial typing systems therefore form the basis for the integration of bacterial taxonomy and epidemiology. Pathogen tracking is relevant for epidemiological studies concerned with the ecology and natural history of a disease; or with planning, monitoring and assessment of disease control programs. Methods for pathogen tracking include identification and typing methods as well as methods for direct detection and quantification of the relevant organism in environmental samples. This paper presents and evaluates current methods for identification and typing of V. harveyi related species and discusses prospects and challenges for developing molecular methods for direct detection of V. harveyi in complex samples. which covered in detail the epizootics of V. harveyi mediated vibriosis, traditional methods for V. harveyi identification, the different virulence factors of V. harveyi, and also discussed epidemiology and possible control measures for commercial aquaculture hatcheries.

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Abstract No: 1

Sustainable Integrated Aquaculture: Innovations for Eco Friendly and Efficient Aquatic Farming

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Abstract:

Sustainable integrated aquaculture (SIA) is an advanced approach that combines different aquatic species and farming techniques to maximize resource efficiency, reduce environmental impact, and improve economic viability. As global demand for seafood rises, traditional aquaculture faces challenges such as water pollution, excessive feed dependency, and habitat degradation. SIA addresses these concerns by integrating species at different trophic levels, recycling nutrients, and adopting eco-friendly technologies. Key systems such as integrated multitrophic aquaculture (IMTA), aquaponics, and biofloc technology have demonstrated significant improvements in water quality management, waste reduction, and overall productivity. IMTA, for instance, allows fish, shellfish, and seaweed to coexist, where waste from one species becomes a resource for another. Aquaponics merges fish farming with hydroponic plant cultivation. Biofloc technology enhances microbial activity to improve water quality while reducing the need for external feed inputs. Recent advancements also include the use of probiotics, microbial consortia, and bio-filters to enhance ecosystem stability. The selection of climate-resilient species and genetic improvements are playing a key role in increasing adaptability and yield. However, the challenges could be disease outbreaks, high initial costs, policy gaps, and the complexity of system management. Overcoming these barriers requires interdisciplinary collaboration among researchers, policymakers, and industry stakeholders. This review emphasizes the need for continued innovation in integrated aquaculture, with a focus on reducing its carbon footprint, improving energy efficiency, and incorporating renewable energy solutions. Strengthen regulatory frameworks, offering financial incentives, and raising awareness about SIA's benefits will be crucial for its global adoption, ensuring a more resilient and sustainable future for aquaculture.

Keywords: Sustainable integrated aquaculture, integrated multitrophic aquaculture, probiotics, biofilters, microbial consortia

Abstract No: 2

Antimicrobial,Antibiofilm andAntioxidant Activities of *Avicennia marina*Leaves.

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Abstract:

Mangroves are widely used for the extraction of natural compounds for the purpose to be used in traditional medicine and the pharmaceutical sector. In this study, *Avicennia marina* leaves were dried and extracted by ethanol, acetone and ethyl acetate. The antimicrobial activity of the three organic extracts was examined against different fish and human pathogens. The mangrove ethyl acetate extract (MEE) which gave the highest antimicrobial activity was further evaluated, as it exhibited a promising antioxidant activity determined by the DPPH test with IC50 of 50.3 mg/ml. Its total phenolic and flavonoid contents were determined to be 109 and 23 mg/g, respectively. In addition, MEE antibiofilm activity was assessed by total biomass quantification using microplate assay and observed under light microscope. MEE showed a highly promising antibiofilm activity, where it succeeded not only in preventing initial cell attachment and biofilm formation by the fish pathogen *Pseudomonas fluorescens*, but also in disrupting the preformed biofilm with IC50 of 42.0 and 45.8 mg/ml, respectively. Furthermore, its chemical composition was determined by GC–MS analysis demonstrating that its major constituents are alcohol, fatty acids and their derivatives. Overall, the current study confirms the promising antimicrobial, antioxidant activities of MEE and reports biofilm inhibition and eradication activities of A. marina ethyl acetate extract against *Pseudomonas fluorescens*.

Key words*: Biofilim, Mangroves, antimicrobial activity and antioxidant activity.*

Abstract No: 3

Comparative effect of Individual and combined administration of Probiotic Strains *Pediococcuspentosaceus* and *Saccharomyces boulardii* as dietary supplementson the Growth Performance, Survival, and Immunological Response in *Penaeus vannamei* (Boone, 1931).

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Abstract: Presently, *Penaeus vannamei* is one of the commercially significant shrimp species with high export value, widely produced in India, particularly in Andhra Pradesh. The rise of shrimp farming has been facilitated by intensified production methods but these have also increased concerns about shrimp health, growth, and survival due to outbreaking of several bacterial and viral diseases. To addressthis situation in shrimp production, antibiotics are often used as a preventive measure; however, due to their undesirable environmental impacts and development of antibiotic resistance in humans, their use is being increasingly restricted. This highlights the need for alternative solutions. Probiotics have emerged as a proven alternative for sustainable aquaculture, promoting improved shrimp health, water quality, and immune function, which in turn helps combat disease.Several bacterial species, including *Bacillus subtilis*, *Enterococcus faecium*, *Lactobacillus*, as well as yeast species like, *Candida utilis, C. sake, Debaryomyceshansenii,Saccharomyces cerevisiae* and *S.boulardii*, have been successfully used as probiotics. Specifically, the application of *Pediococcuspentosaceus*has demonstrated positive effects on fish and shrimp health by enhancing enzyme activity, which improves digestion, nutrient utilization, and immune responses. Additionally, *P.pentosaceus* promotes beneficial bacterial diversity, improved growth performance, and serum biochemistry. Similarly, *Saccharomyces boulardii*helps maintain gut health, even in the presence of antibiotics and it also produces many bioactive substances works by directly increasing the immune responses.The present study aims to investigate the combined administration of *P. pentosaceus* and*S. boulardii* as probiotics. Some studies have shown that a combination of bacterial and yeast strains can be more effective than single-strain applications. Therefore, this study seeks to explore the synergistic potential of these probiotics for enhancing shrimp health and productivity with added advantage of environmental sustainability.

Key words:*Litopeneusvanamei*, *Pediococcuspentosaceus, Saccharomyces boulardii,* Antibiotics, Probiotics, Bioactive substances.

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Abstract No: 4

Lethal and Sublethal Effects of Azoxystrobin and Tebucanazole (Adama Custodia) on *Catla catla.*

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Abstract:

This study investigates the lethal and sublethal effects of two fungicides, Azoxystrobin (23%) and Tebucanazole (18%), on the freshwater fish species *Catla catla.* With the increasing use of agrochemicals in aquatic environments, understanding their impact on non-target organisms is crucial for ecological conservation. The study involved exposing *Catla catla* to varying concentrations of both fungicides to assess mortality rates and sublethal physiological and behavioral responses over a defined exposure period. Results indicated that both Azoxystrobin and Tebucanazole exhibited significant lethal effects, with mortality rates escalating with increased concentration and exposure duration. The 96-hour LC50 value for Azoxystrobin was determined to be significantly lower than for Tebucanazole, suggesting higher acute toxicity. Sublethal assessments revealed alterations in swimming behavior, reduced feeding activity, and impaired respiratory function in exposed fish, which could lead to long-term population declines and ecosystem imbalances. Histopathological examinations indicated tissue damage in gills and liver, highlighting the chronic impacts of these fungicides at sublethal concentrations. Additionally, biochemical analyses showed elevated stress markers, suggesting that exposure to these chemicals compromises the health of *Catla catla*, impacting its survival and reproductive success. This research underscores the necessity for regulatory measures surrounding the use of fungicides in agricultural practices near aquatic ecosystems. The findings provide critical insights for environmental risk assessments and the development of sustainable practices to protect aquatic biodiversity.

Keywords: Azoxystrobin, Tebucanazole, *Catla catla*, lethal effects, sublethal effects, freshwater fish, agrochemicals, aquatic toxicity, ecological conservation.

Abstract No: 5

AQUATIC TOXICOLOGY: UNRAVELING THE IMPACT ON AQUATIC ORGANISMS

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Abstract:

Aquatic ecosystems worldwide are under constant threat due to the pervasive presence of toxic substances, leading to detrimental effects on the diverse array of organisms that inhabit these environments. The field of aquatic toxicology aims to comprehend the intricate relationships between contaminants and aquatic life, shedding light on the far-reaching consequences of human activities on the health and sustainability of aquatic ecosystems. This abstract delves into the critical aspects of aquatic toxicology, emphasizing its profound effects on aquatic organisms. The introduction outlines the prevalence of pollutants such as heavy metals, pesticides, pharmaceuticals, and industrial chemicals in aquatic systems, originating from urban, agricultural, and industrial sources. These contaminants often find their way into water bodies, where they can persist, accumulate, and exert toxic effects on aquatic organisms. The abstract discusses the mechanisms of toxicity, including bioaccumulation and biomagnification, elucidating how these processes amplify the impact of pollutants through the food web. The subsequent sections delve into the specific physiological and behavioral responses of aquatic organisms to various toxicants. These responses encompass altered reproductive patterns, impaired growth, compromised immune systems, and disruptions in neurological functions. Additionally, the abstract explores the potential long-term consequences for population dynamics and biodiversity within affected ecosystems. In conclusion, the abstract emphasizes the urgency of addressing aquatic toxicology to safeguard the health of aquatic ecosystems and the myriad organisms dependent on them

KEYWORDS: Bioaccumulation, Contaminants, Toxic Substances, Sustainable aquaculture, Biodiversity

Abstract No: 6

INTEGRATING PUL MAKHANA CULTIVATION WITH FISH CULTURE: A SUSTAINABLE APPROACH TO AQUATIC FARMING

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Abstract:
Integrating Pul Makhana (Euryale ferox) cultivation with fish culture presents a sustainable and eco-friendly approach to aquatic farming, enhancing resource utilization and economic viability for farmers. Pul Makhana, a highly nutritious aquatic crop, is traditionally cultivated in stagnant water bodies, often in the same environments suitable for fish farming. By combining these two systems, farmers can achieve higher productivity, reduced input costs, and improved environmental sustainability.This integrated approach offers several benefits. Firstly, Makhana plants provide natural shelter and food for fish, improving their survival rates. Secondly, fish activity in Makhana ponds aids in natural pest control and water aeration, reducing the need for artificial interventions. Additionally, fish waste acts as an organic fertilizer, enhancing Makhana growth and reducing dependency on chemical fertilizers. This synergy results in higher yields for both fish and Makhana, leading to better economic returns for farmers.Despite its advantages, this system requires careful management to balance water quality, nutrient levels, and stocking densities of fish. The selection of compatible fish species, such as common carp (Cyprinus carpio) and tilapia (Oreochromis spp.), is crucial to prevent excessive disturbance to the Makhana plants. Moreover, periodic monitoring of water pH, dissolved oxygen, and nutrient concentrations ensures optimal growth conditions for both crops.In conclusion, the integration of Pul Makhana cultivation with fish farming offers a promising agro-aquatic model that optimizes natural resources, increases economic benefits, and supports sustainable development.

Keywords:

Integrated, aquaticecosystems, natural, sustainable development, traditional culture.

Abstract No: 7

HISTOPATHOLOGICAL CHANGES OF FRESHWATER FISH *CATLA CATLA* EXPOSED TO FIPRONIL 5%SC

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ABSTACT:

The toxicity of any environmental contaminant is either acute or chronic, and the chronic studies of the organisms; physiological studies alone do not satisfy the complete understanding of pathological conditions of tissues under toxic stress.The present investigational have revealed that the Fipronil which is usually released into the water system through leaching or run off water from agricultural operation have enough potential to cause different alterations from cellular to death to the fish. The aim of the present study was to evaluate the occurrence of histological alterations in gills, kidney and liver of the freshwater fish, *Catla catla.*The histopathological changes are one of the most sensitive parameters for the evaluation of chronic toxicity test effects and thus also for the derivation of Maximum Allowable Toxicant Concentration as reported. Moreover, the sublethal concentrations may become lethal for populations confrontedwith additional stresses. This should be taken into serious consideration when evaluating the effects of mixtures of toxicants in fresh water fish under natural conditions. The present study summarized the effects of pesticide fipronil on histopathology of several important organs of fish.

Keywords: *Catla catla*, Histopathological changes, Fipronil 5%SC

Abstract No: 8

Disease Management in Finfish Farming

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Abstract

Disease management is a critical component of sustainable finfish farming, as outbreaks can lead to significant economic losses and environmental concerns. A proactive approach combining prevention, early detection, and effective treatment is essential to maintaining fish health and farm productivity. Biosecurity measures, including strict quarantine protocols, water quality control and farm hygiene are crucial in preventing pathogen introduction and spread. Regular monitoring and rapid diagnostic techniques such as microscopy, PCR, and ELISA enable early disease identification, reducing mortality rates. Preventive strategies focus on vaccination, probiotics and balanced nutrition to enhance fish immunity. Vaccines against bacterial and viral pathogens like *Vibrio spp*., *Aeromonas spp*., and *Streptococcus spp*. significantly reduce disease outbreaks. Nutritional supplementation with vitamins, minerals and functional feed additives strengthens disease resistance. Maintaining optimal water parameters, such as temperature, dissolved oxygen and pH levels, also minimizes stress-induced infections. When disease occurs, rapid intervention through medicated feeds, chemical treatments, and environmental adjustments is necessary. Antibiotics like oxytetracycline are used for bacterial infections, while formalin, potassium permanganate and salt baths help control parasitic infestations. Reducing stocking density, improving water flow and removing infected fish further limits disease transmission. However, the overuse of antibiotics poses risks of antimicrobial resistance (AMR) and environmental contamination, emphasizing the need for responsible drug use and alternative treatments. A holistic approach integrating biosecurity, preventive healthcare, monitoring, and sustainable treatment methods ensures effective disease management in finfish farming. Present study provides review of implementing these strategies enhances fish welfare, improves farm profitability and supports the long-term sustainability of aquaculture operations.

Keywords: Fish farming, Disease, Vaccination, Antibiotics, Parasites, Probiotics.

Abstract No: 9

Monitoring the Efficacy of Composition of Bioflocs in the Culture Operation of Pacific White Shrimp *Litopenaeus vannamei*

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Abstract

Biofloc technology, or BFT, has recently been developed as a sustainable alternative for aquaculture, particularly for the intensive culture of the Pacific white shrimp, *Litopenaeus vannamei*. This paper reports on the effectiveness of biofloc composition in optimizing water quality, microbial communities, and shrimp growth performance in a controlled culture operation. The study entailed periodic monitoring of key parameters such as total suspended solids, carbon-to-nitrogen ratio, microbial diversity, and water quality indices. The results showed that there is a significant relationship between the composition of biofloc and shrimp growth rate, survival, and feed conversion efficiency. Moreover, the study emphasizes the contribution of heterotrophic bacteria in maintaining the stability of the culture condition. The implication of this research is that modifying the composition of biofloc can improve sustainability and productivity in *L. vannamei* aquaculture by minimizing dependence on water exchange and external feed input. This research provides important information on how to better manage the biofloc for sustainable shrimp farming.

Keywords: Biofloc Technology, *Litopenaeus vannamei*, Water Quality, Microbial Communities, Sustainable Aquaculture, and Feed Conversion Efficiency.

Abstract No: 10

USE OF ANTIBIOTICS AND IMPACT ON AQUACULTURE

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Aquaculture the farming of aquatic organisms ,growing rapidly in worldwide. It is the one of the growing food producing sectors that contributes to supply nutritious protein to human health. Cultured fishes are sustainly exposed to microorganisms which lead diseases caused by bacteria, virus and fungi . By these mortality and production loss is seen. Generally aquaculture loss will be 54.9% from bacteria, 22.6% from viruses and 3.1% from fungi. Since decades aquaculture have been threatening by a wide range of antibiotic compounds. Antibiotics like tetracyclin,oxytetracyclin, florofenicol, sulfamerazine,pencillin are used in aquaculture for preventing diseases by administering them through their food or water, to promote the health and growth of fish stocks to show the productivity to maximum. Overall antibiotics used in the livestock sector is increasing and estimates of total use range from around 63,000 tons to over 240,000 tons per year. It has been estimated that fisheries supplying the world with about 110 million tons of fish per year.Antibiotics are used to get quality and quantity more production of aquaculture species and disease resistant organisms. If antibiotics are used more than stable and lack of knowledge then more negative complications can be seen like antibiotic resistance bacteria, bioaccumulation,Biomagnification, less egg production, Ecotoxicological effects, Biogeochemical cycles. Measures are to be taken to use antibiotics to sustainable aquaculture . Fish farmers are guided how to use antibiotics, whichantiboticsto be used and what antibiotics are banned. Alternative methods for Antibiotics are organic method, inorganic method and vaccines, Antibodies, Bacteriophages, Probiotics, chicken egg yolk, quaram quenching.

Key words: antibiotics,Aquaculture, ecotoxicology, bioaccumulation, Biomagnification.

Abstract No: 11

ANTIBIOTICS IN AQUACULTURE

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Abstract

Aquaculture is essential to India's food security and economy, faces significant challenges due to the over use of antibiotics. The resultant antimicrobial resistance (AMR) possesses serious threats to human health, aquatic life, and the environment. However, the wide spread use of antibiotics presents several challenges such as Antimicrobial Resistance (AMR)i.e., overuse can lead to the development of antibiotic-resistant bacteria, posing significant threats to human health, animal health, and the environment; Environmental Impact i.e., antibiotics can persist in water environments, affecting natural bacterial communities and ecosystems; Human Health Risks i.e., presence of residues in aquaculture products can pose risks to consumers if not properly managed; and Regulatory Differences i.e., varying regulations across countries lead to inconsistencies in safety and quality standards. Common antibiotics used in aquaculture quinolones, tetracyclines, amphenicols and sulphonamides. Specific treatments for bacterial infections include Erythromycin, Nitrofurans, Oxytetracyclines, Sulfamonomethoxones, Oxalinic Acid, Macrolides and Fluoroquinolones. In hatcheries, prophylactic and therapeutic antibiotic use is common. Aqua medicines such as Zeolite, geotox, Zeo care, bio-aqua and Aquanone are used for pond preparation and water management. In freshwater aquaculture, Oxytetracycline, Sulfadiazine, and Trimethoprim are widely used. Effective management of antibiotics in aquaculture requires international collaboration to harmonize regulations and promote sustainable practices. By balancing the benefits and risks of antibiotic use, aquaculture can continue to contribute to food security and economic growth while minimizing negative impacts on health and the environment. Among the most potent antibiotics ciprofloxacins are those that prevail in streams and rivers in the concentrations such as sub-lethal concentrations which might not kill prokaryotes but contribute to increased bacterial resistance and change the composition of single-celled communities.

Keywords: Aquaculture, antibiotic, antimicrobial resistance, quinolones, tetracyclines and macrolides.

Abstract No: 12

Emerging Trends and Innovations in Aquaculture Technology

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Abstract: Aquaculture is rapidly evolving field of science with emerging technologies and innovative practices which are boosting the industry and enhancing its potential for sustainable aquaculture practices. As global population is increasing exponentially the demand for seafood is risingat a rapid pace.Hence to meet the requirement innovations in aquaculture are not only increasing production efficiency but also addressing environmental and economic challenges. In recent years, some key trends are driving this transformation. Some of them are advanced Recirculating Aquaculture System (RAS), IntegratedMulti-trophic Aquaculture (IMTA), Genomic and selective breeding, alternative protein source for feed, offshore Aquaculture, bio-floc technology for waste managementetc. In RAS, fish to be farmed in closed-loop systems are cultured where water is continuously filtered and re-used and it maintains high bio-security, consistent quality, and a smaller ecological footprint, eliminating environmental degradation and threats to the wild stock.RAS enables us to do culture in urban and arid areas with minimal water and land usage. IMTA deals with culturing of multiple species in a single ecosystem, each with a different role. Reduction inwaste,natural filtration, enhanced bio-security and ecosystem health are key benefits in IMTA.Genomics and selective breeding are unlocking new opportunities for improving disease free or disease resistant and faster growth rate species with better feed efficiency. Emerging protein alternativesuch as algae, insects, plant based proteins are proving to be effective and sustainable options. Now a days, along coastline, offshore aquaculture is expanding with low land usage and reducing impact on coastal ecosystems. Further,bio-floc technology is an innovative solution for waste management, creating microbial community that convert waste into food. The key benefits of all these culture systems are reduction in waste and nutrient pollution, lower feed cost, improved water quality and bio-security. The convergence of these emerging innovative technologies represents a promising future for aquaculture.

Key words: Bio-floc technology, bio-security, Recirculating Aquaculture System, Selective breeding.

Abstract No: 13

Ameliorative effect of Probiotics and Vegetable Waste Supplies on the growth differences of aqua cultured Species (Shell-Fish).

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ABSTRACT

The present investigation was explained to observing the impact of Vegetable Wastes, Probiotics and Bioflocs on the growth and performance Parameters of aqua cultured Shell-Fish in 90 days feeding trail experiments. Due to the addition of Vegetable wastes, Probiotics and Bioflocs into the culture operation significantly increased the growth potentials in Shell- Fish. The vegetables contain biomolecules including lipids, Carbohydrates, Proteins, Minerals, Vitamins, and Phytonutrients which were forming as rich Sources to Shell-fish growth and maintenance.The current study used vegetable wastes to replace fishmeal in the feed formulation while also effectively meeting the needs of growth, molting, and metabolic processes. This helps to maintain a clean aquatic environment and promotes the growth of heterotrophic bacteria and a large number of planktonic forms. This will subsequently boost production and growth rates by serving as additional feeding content. When comparing probiotic and biofloc-added feeds to vegetable waste-formulated feed, the growth parameters, including weight gain, specific growth rate, feed conversion efficiency, and protein efficiency rates, were significantly ($P<0.05$) higher.The current study found that feeds containing probiotics (2.15) and biofloc (1.93) had lower feed conversion ratios than feeds formulated with vegetable waste (2.54). The energy utilization metrics, including feeding, absorption, conversion, excretory, and metabolic rates, were significantly ($P<0.05$) greater than those of the control feed that contained vegetable waste.Vegetable wastes can therefore be thought of as a perfect substitute for fishmeal for creating shellfish feed, especially when probiotics and bioflocs are used to successfully promote growth potentials for shellfish culture operations.

Key words: probiotics, bioflocs, phytonutrients, formulated feed.

Abstract No: 14

Impact of Avian Influenza on Poultry and Aquaculture in Andhra Pradesh: A Public Health and Environmental Concern

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Abstract:

The recent outbreak of avian influenza (HPAI) in Andhra Pradesh, particularly in the Godavari districts, has had a severe impact on the poultry industry, leading to the loss of over 520,000 chickens. This crisis has disrupted the local economy, shifting consumer preference towards seafood. However, reports indicate that some individuals have resorted to using infected poultry carcasses as fish feed, raising concerns about food safety, disease transmission, and environmental hazards. This study examines the consequences of the outbreak on both poultry and aquaculture, focusing on biosecurity measures, improper disposal practices, and the effectiveness of government interventions such as culling operations, containment strategies, and public awareness initiatives. Through field surveys, laboratory testing, and interviews with stakeholders—including poultry farmers, fish farmers, and health experts—this research highlights the risks associated with cross-contamination and the need for stricter enforcement of disposal protocols. Strengthening surveillance systems, promoting responsible waste management, and educating the public on safe consumption practices are essential to preventing future outbreaks and ensuring food safety.

Keywords: Avian Influenza, Poultry Farming, Biosecurity, Aquaculture, Public Health, Food Safety, Andhra Pradesh

Abstract No: 15

Integrated Disease Management Strategies for Sustainable Finfish Aquaculture

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Abstract

The sustainable growth of the aquaculture industry largely depends on effective disease management in fish. Infectious diseases caused by bacterial, viral, fungal, and parasitic pathogens pose significant threats to fish health, leading to substantial economic losses. Environmental stressors such as poor water quality, inadequate nutrition, and high stocking densities further exacerbate disease outbreaks. Common pathogens affecting finfish include *Aeromonas hydrophila*, *Vibrio* spp.,*Myxoboluscerebralis*, *Gyrodactylus*, *Dactylogyrus*, *Argulus* and *Ichthyobodonecator*.A holistic approach to disease management involves prevention, early detection, and appropriate treatment strategies. Preventive measures such as biosecurity protocols, vaccination, probiotics, and immunostimulants play a crucial role in reducing disease incidence. Regular monitoring of water quality parameters, including dissolved oxygen, ammonia, pH, and temperature, helps minimize stress and enhance fish immunity. Molecular diagnostic techniques such as PCR and ELISA facilitate the early detection of pathogens, enabling timely intervention.Treatment strategies vary depending on the causative agent, such as the use of antibiotics, antifungal agents, and antiparasitic treatments. However, the indiscriminate use of antibiotics has led to antimicrobial resistance, necessitating alternative methods such as phytotherapy and bacteriophage therapy. Integrated disease management (IDM), combining good aquaculture practices, selective breeding for disease-resistant strains, and sustainable treatment approaches, ensures long-term disease control.The future of finfish disease management lies in advancing biotechnology-driven solutions, enhancing farmer awareness, and implementing stringent health management protocols. Strengthening research and extension services will further support sustainable aquaculture development, reducing losses due to fish diseases.

Keywords: Finfish aquaculture, Disease management, Fish health, Pathogens, Biosecurity

Abstract No: 16

USE OF ANTIBIOTICS AND IMPACT ON AQUACULTURE SYSTEMS

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ABSTRACT

In aquaculture, antibiotics are primarily used to treat and prevent diseases in farmed fish by administering them either through food, baths, or injections, but their overuse can lead to significant environmental impacts like the development of antibiotic-resistant bacteria and contamination of the aquatic ecosystem, posing a risk to human health and ecosystem balance.Drug choices for the treatment of common infectious diseases are becoming increasingly limited and expensive and, in some cases, unavailable due to the emergence of drug resistance in bacteria and fungi – resistance that is threatening to reverse much medical progress of the past 50 years. Dissemination of resistant micro-organisms may occur in both hospitals and communities. It is recognized that a major route of transmission ofresistant microorganisms from animals to humans is through the food chain. In aquaculture, antibiotics have been used mainly for therapeutic purposes and as prophylactic agents. The contribution to antimicrobial resistance of antibiotics used in aquaculture is reviewed here, using a risk analysis framework. Some recommendations on responsible conduct in this context are proposed, aimed at diminishing the threat of build up of antimicrobial resistance. Antibiotic residues can select for resistant aquatic bacteria, promoting the spread of antibiotic resistance, even when concentrations were below the minimum inhibitory concentration (MIC) of bacterial strains of the community. High frequencies of antibiotic-resistant bacteria have been reported in sites near aquaculture where antibiotics have been used, demonstrating that modified antibiotics in an aquaculture facility have a high potential to exert selective pressure and increase the frequency of antibiotic resistance in other environmental bacteria. In the aquatic environment, 90% of aquatic bacteria show resistance to at least one antibiotic, and approximately 20% were multi antibiotic-resistant. In the case of simultaneous application of different antibiotics in aquaculture, multiresistant bacteria can develop. Bacteria carrying genes coding for novel antibiotic resistance mechanisms were moreover present.

Abstract No: 17

ENVIRONMENTAL IMPACT ASSESSMENT OF AQUACULTURE PRACTICES: CHALLENGES AND SOLUTIONS

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Abstract:

The expansion of aquaculture practices has raised concerns about the environmental impacts on marine ecosystems. Effective environmental impact assessments (EIAs) are crucial to understanding the ecological consequences of aquaculture activities and implementing measures to minimize negative effects. This review examines the challenges and solutions associated with assessing the environmental impact of aquaculture practices.Key challenges in conducting environmental impact assessments of aquaculture operations include the complexity of interactions within aquatic ecosystems, the lack of standardized methodologies, and the limited availability of baseline data. Addressing these challenges requires interdisciplinary approaches that integrate biological, chemical, and physical assessments to evaluate the full extent of environmental impacts. Furthermore, solutions must focus on enhancing monitoring programs, implementing best management practices, and promoting sustainable aquaculture techniques. Monitoring programs should be designed to assess water quality parameters, biodiversity indicators, and habitat changes to track the ecological health of aquaculture sites. Best management practices, such as site selection criteria and stocking density regulations, can help mitigate environmental impacts and promote sustainable aquaculture development.In conclusion, conducting thorough environmental impact assessments of aquaculture practices is essential for ensuring the long-term sustainability of the industry. By addressing the challenges and implementing effective solutions, aquaculture operations can minimize their environmental footprint and contribute to the conservation of marine ecosystems for future generations.

Keywords:

Aquaculture, environmental impact assessment, sustainability, challenges, solutions.

Abstract No: 18

Impact of Better Management Practices on the Growth, Survival, and Production Efficiency of Pacific White Shrimp (*Litopenaeus vannamei*)

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ABSTRACT

Aquaculture, a rapidly expanding sector, significantly contributes to global seafood production. In 2022, total fisheries and aquaculture output reached 223.2 million tonnes, with aquaculture surpassing capture fisheries for the first time. India, a major contributor, achieved a record seafood export of 1.78 million tonnes in 2023–24, valued at USD 7.38 billion. Frozen shrimp dominated exports, with the USA and China as primary markets. Among shrimp species, *Litopenaeus vannamei* plays a crucial role in India's aquaculture sector. Andhra Pradesh leads shrimp production with 932,484 metric tonnes, followed by Odisha, Tamil Nadu, and West Bengal. Key factors influencing shrimp farming success include stocking density, feeding frequency, and water quality. However, disease outbreaks and environmental degradation pose significant challenges to sustainable shrimp farming. Better Management Practices (BMP's) provide standardized guidelines to enhance productivity, improve biosecurity, and mitigate disease risks. Implementing BMP's from pond preparation to post-harvest ensures Growth Performance, Productivity, Sustainability, Minimizes Environmental Impact, and Enhances economic viability. These practices prevent pathogen transmission between aquaculture systems and natural water bodies, thereby safeguarding ecosystem health. BMP's encompass optimal stocking strategies, water quality management, biosecurity protocols, and responsible feed management. Adoption of these measures can significantly improve shrimp survival rates, reduce disease incidences, and enhance overall production efficiency. Continued research and farmer education on BMP implementation are essential for achieving long-term sustainability in shrimp aquaculture.

Keywords: Aquaculture, Better Management Practices (BMPs), Shrimp Farming, Growth Performance, Survival

Abstract No: 19

Review on morphometric relationship between body length and weight in fish

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Abstract:

Length –weight relationship is an important parameter in fish biology. In general, it help us to understand the growth patterns of the fish it is one of the most suitable features to establish population analysis, typically indicated by variations in length and weight. Investigations on the length weight relationship and condition factor enable us to compare the population of same species from different localities. The relationship also gives an idea on the condition of fish associated with maturity and breeding. The length-weight relation equation provides a mathematical relationship among two variables, length and weight, so that unknown variable can be easily calculated from unknown variable. It is also used to find out the expected weight form length and weight and is used as an indication of fatness. The precise relationship between length and weight differs among species of fish according to their innate body shape and within species according to the condition of individual fish (James et al., 2000). The length –weight relationship may vary over time with some internal and external factors. The factors influencing the variation of length –weight relationship and condition of fishes may due food availability, sex, maturation, spawning seasons and water conditions. The growth of fishes can be categorized into three i.e., isometric growth, negative allometric growth and positive allometric growth. Whereas the fish showing isometric growth pattern there is no change in body shape and weight according to the increase in length. A fish is in good condition exhibits isometric growth. While the lean fishes show negative isometric growth. Insufficient availability of food and environmental changes are the major reason for negative allometry in fish. When a fish is showing positive allometric growth they increase in weight at faster rate in relation to its increase in length. Fat fishes exhibit positive allometry growth. Increase in the ovary during breeding season increases the total body weight of a fish. Hence the length –weight relationship is an indication of gonad development in fishes. The relationship between length and weight of a fish is usually expressed by the equation, $W=aLb$. Where W indicate body weight (gr.), L indicate total length (cm), a" indicates is coefficient related to body form and b" indicate in an exponent indicating isometric growth when equal to 3 (Beverton and Holt, 1996). A logarithmic transformation was used to make the relationship linear $\log W = \log a + b \log L$. Values of the exponent b provide information on fish growth. When b=3, increase in weight is isometric. When value of b is other than 3, wight increase is allometric (positive if $b>3$, negative allometric if $b<3$) (Levent et al., 2007). Significance between regression coefficient of the sexes was tested by ANOVA (Ostertagova and Ostertag, 2013; Neill, 2010).

Key words: Allometric growth, Body weight, Breeding, Maturity, Isometric Growth.

Abstract No: 20

Role and impact of Antibiotics in Aquaculture systems and alternatives to antibiotic use in Aquaculture

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Abstract:

Aim of the present study is to understand the role, environmental and health impacts and alternatives to antibiotics using in aquaculture. Aquaculture is a complex system of culturing aquatic organisms, covers a wide range of organisms from plants to animals principally fishes, prawns, shrimps, crabs, mollusks etc. All of these, being an aquatic organisms, they are exposing to a wide array of microorganisms. Some of them are potentially pathogenic for example, pathogeneic bacteria and viruses. Most of the pathogenic bacteria belong to gram negative bacteria so that most antibiotics using in aquaculture are effective against gram negative bacteria. Most common bacterial fish pathogens include *Aeromonas*, *Pseudomonas*, *Edwardsiella*, *Flavobacterium*, *Streptococcus*, etc. Commonly used antibiotics to prevent bacterial infections in cultured fishes are tetracycline, amoxicillin, β-lactams, trimethoprim, chloramphenicol and florefenicol; quinoles and sulfonamides. In recent years, due to intensive and semi-intensive culture practices the use of antibiotics was rapidly intensified. However, continuous and rapid intensification of antibiotics usage in aquaculture leads to development of antibiotic resistance in aquatic pathogens which in terms pose a severe threat to human and animal health worldwide and also leads to environmental pollution. Furthermore, the consequential difficulty in treating common bacterial diseases, combined with the presence of antibiotic residues in food fish and their products, leading to import refusals and negative impacts on international trade. The emergence of antibiotic resistant bacteria is a global threat and scientists projected that it could pave the way for the next pandemic that could ravage the world in the next decades. To avoid these circumstances there is need to reduce AMR, good aquaculture and effective bio-security practices should include the prudent and responsible use of antibiotics and also consider the use of alternatives to antibiotics, in addition to disease prevention management. It is also time to focus research on understanding and minimizing the impact of antibiotics on the sustainable aquaculture. In modern era, a number of alternatives to antimicrobials usage in aquaculture include vaccination strategies, phage therapy, quorum quenching, probiotics, prebiotics, chicken egg yolk antibody (IgY) and plant therapy. And moreover, use of ‘clean seed’ or specific pathogen free (SPF) stocks as a primary and essential part of a bio-security strategy. It is therefore pertinent to monitor the release of antibiotics into the environment, develop stricter regulations and train fish farmers about the toxic effects of antibacterial compounds on aquatic biota and on human health and focus research on alternatives of antibiotic usage.

Key words: *Aeromonas*, Antibiotics, Microorganisms, Probiotics, Vaccination.

Abstract No: 21

Phytoplankton and Zooplankton Analysis in a Biofloc based System with addedProbiotics

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Abstract:

Biofloc technology (BFT) has emerged as a sustainable approach to aquaculture, promoting efficient resource utilization and minimizing environmental impact. This study investigates the dynamics of phytoplankton and zooplankton communities within a BFT system supplemented with probiotics, aiming to elucidate their roles in nutrient cycling, water quality management, and overall system productivity. The experiment was conducted in a controlled BFT system, where Pacific white shrimp (*Litopenaeusvannamei*) served as the cultured species. The system was inoculated with a consortium of beneficial probiotics, including *Bacillus licheniformis* and *Lactobacillus rhamnosus*spp., known for their ability to enhance nutrient mineralization and suppress pathogenic bacteria. Water samples were collected periodically over a 60-day period to analyze phytoplankton and zooplankton composition, abundance, and diversity. Flow cytometry and microscopy techniques were employed for species identification and cell enumeration. Additionally, key water quality parameters, such as ammonia, nitrite, nitrate, and dissolved oxygen, were monitored to assess the influence of plankton communities and probiotics on water quality.Phytoplankton, primarily composed of diatoms and green algae, exhibited a rapid growth phase in the initial stages, utilizing the available nutrients and contributing to oxygen production. As the system matured, zooplankton, mainly rotifers and copepods, proliferated, grazing on the phytoplankton and contributing to nutrient regeneration through their metabolic activities. The incorporation of probiotics appears to have a positive impact on both plankton communities and water quality, suggesting their potential as valuable tools for optimizing BFT systems.

Key words: Biofloc, Probiotics, Water quality, L. vannamei, Phytoplankton, Zooplankton

Abstract No: 22

ASSESSING THE ENVIRONMENTAL IMPACT OF AQUACULTURE THROUGH LESSONS FROM THE 2020 ELURU INCIDENCE

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Abstract: The 2020 Eluru mysterious disease outbreak in Andhra Pradesh, India, exposed significant environmental and public health risks, affecting over 600 individuals with symptoms such as seizures and unconsciousness. Investigations attributed the outbreak to pesticide contamination, heavy metals, and polluted water sources, yet the role of aquaculture pollution in intensifying the crisis was largely overlooked. This study evaluates the environmental impact of aquaculture, particularly in West Godavari district, where intensive fish and shrimp farming is widespread.Aquaculture practices often contribute to water pollution, chemical contamination, and biodiversity loss through the excessive use of pesticides, antibiotics, and artificial feeds, which enter surrounding water bodies via runoff and leaching. In Eluru, the presence of organophosphate pesticides like Triazophos, heavy metals such as lead and nickel, and nutrient overload in water sources suggests possible links to aquaculture waste. By analyzing data from the Eluru outbreak alongside similar global case studies, this paper identifies key ecological risks associated with unsustainable aquaculture.The findings highlight the urgent need for regulatory frameworks to monitor water quality, reduce hazardous pesticide use, and enforce responsible aquaculture practices. Sustainable solutions such as recirculating aquaculture systems (RAS) and integrated multi-trophic aquaculture (IMTA) can help mitigate environmental damage while maintaining economic benefits. By strengthening policy interventions and community awareness, India can prevent future aquatic pollution disasters and ensure a balance between aquaculture growth and ecological health.

Keywords: Aquaculture, Environmental Pollution, Water Contamination, Pesticides, Biodiversity Loss, Sustainable Fisheries

Abstract No: 23

Behavioral Impairment in Juvenile Sea Turtles Following Exposure to Aquaculture Effluent Oxytetracycline

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Abstract

Estuarine nurseries are vital for juvenile sea turtle development, yet face increasing antibiotic pollution from aquaculture. This study investigates the behavioral consequences of exposure to *oxytetracycline*, a common aquaculture antibiotic, on juvenile *Caretta caretta*. We hypothesized that oxytetracycline exposure would impair key survival behaviors. Using controlled laboratory exposures, juvenile turtles were exposed to environmentally relevant concentrations of oxytetracycline (**2 µg/L**) for **21 days**, alongside control groups. Behavioral assays assessed foraging efficiency, predator avoidance, and activity levels. Oxytetracycline-exposed turtles exhibited a significant **20% reduction** in feeding rate (grams of food/hour, Control: **1.2 ± 0.1 g/hr**, Exposed: **0.96 ± 0.09 g/hr**, $p < 0.05$), a **35% increase** in predator escape latency (seconds, Control: **2.5 ± 0.3 seconds**, Exposed: **3.38 ± 0.4 seconds**, $p < 0.01$), and a **10% decrease** in overall activity (meters/24hr, Control: **1500 ± 100 meters/24hr**, Exposed: **1350 ± 95 meters/24hr**, $p < 0.05$). *In conclusion*, exposure to environmentally relevant oxytetracycline concentrations induces measurable behavioral impairments in juvenile sea turtles, specifically compromising foraging and predator avoidance. *Future research* should examine the ecological ramifications of these oxytetracycline-induced behavioral deficits on juvenile sea turtle survival and population trajectories in estuarine nursery habitats, and explore potential mitigation strategies for antibiotic pollution in these critical environments.

Key words: *oxytetracycline,* juvenile sea turtles, antibiotic pollution, predator , ecological ramification,

Abstract No: 24

Effect of Biotic and Abiotic factors on the disintegration of Pyrethroids(Cypermethrin, Deltamethrin) and Acaricide (Amitraz)in fresh water fish culture ponds in Andhra Pradesh

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Abstract

Effective management of insect and mite pests in freshwater lentic ecosystems requires understanding the environmental fate of control agents. This study comparatively analyzes the disintegration kinetics of cypermethrin, deltamethrin, and amitraz in freshwater, aiming to differentiate their degradation profiles and assess relative persistence. Utilizing comparative degradation assessment and first-order kinetic modeling, results demonstrate significantly faster disintegration of pyrethroids compared to amitraz in the aqueous phase. Estimated average half-lives were ~8 days for cypermethrin ($k \approx 0.0866$ day^{-1}) and ~10 days for deltamethrin ($k \approx 0.0693$ day^{-1}), contrasting with ~25 days for amitraz ($k \approx 0.0277$ day^{-1}). Pyrethroid degradation primarily involves hydrolysis, photolysis, and biodegradation, while amitraz degradation is dominated by hydrolysis, with supplementary photolysis and biodegradation. From an aquatic ecosystem management perspective, pyrethroids, exhibiting shorter aqueous phase half-lives, may appear as less persistent alternatives to amitraz. However, this conclusion is conditional, requiring holistic risk assessment encompassing product efficacy, off-target ecotoxicological effects, sediment fate, and application methodologies. Future research should prioritize refining predictive fate models by integrating site-specific limnological variables, conducting mesocosm and field validation, and comprehensively investigating pesticide transformation product fate and ecotoxicity to enhance risk assessments and inform sustainable integrated pest management in freshwater ponds.

Key Words : Cypermethrin, Deltamethrin, Amitraz, Degradation, Freshwater Ecosystems

Abstract No: 25

Reproductive potential of zebrafish (Daniorerio) carbendazim toxicity

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Abstract

The overuse and prolonged administration of pesticides have raised concerns regarding their reproductive health impact on overall fecundity. This study aims that reproductive potential of zebrafishunder carbendazimtoxicity.The focus is on evaluating the adult zebrafish exposed to carbendazim for a period of 42 days @400ul/lit concentration which shows the reduced fecundity and gonad in females.The research will involve a detailed histopathological assessment of zebrafish ovarian tissue and mainly concern on the egg quantity and quality i.e., viable and non viable eggs in different time intervals. The histological studies results that the mature ovarian follicles are completely absent in female gonad and the number of PMC had reduced. Findings from this study will expand the understanding of Carbendazim as an effective pesticides mostly impacts on egg quality which rigid the tissue leads to severe health consequences which is mostly effects on further generation offsprings.

Keywords: Carbendazim; Reproductive Toxicity; Zebrafish (Daniorerio); Fecundity; Egg Quality; PMC.

Abstract No: 26

BIOCHEMICAL ALTERATIONS AS TOTAL PROTEINS (TP), ASPARTATE, AMINOTRANSFERASES (AAT) AND ALANINE AMINO TRANSFERASES (ALAT) INDUCED BY CHLORPYRIFOS (AN ORGANOPHOSPHATE)

IN THE FISH *CHANNA PUNCTATA* (BLOCH)

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ABSTRACT

Chlorpyrifos, an organophosphate, technical grade and 20% EC induced alterations in the biochemical parameters as total proteins (TP), Aspartate, Amino Transferase (AAT) and Alanine Amino Transferases (ALAT) in the fish *Channa Punctata* (Bloch), in the laboratory after exposing them in both lethal and sub-lethal concentrations for four days and 10 days respectively taking into consideration of 96 hour LC_{50} values of the respective toxicants. The fish vital organs, Gill, Liver, Kidney, Brain and Muscle are studied and found an appreciable quantity of percentage as decrement of TP and increment in AAT and ALAT enzymes in this present study. Proteolysis and an hormonal imbalance due to the toxic stress as an effect resulted in the protein breakdown and gluconeogenesis might be also be the reason of the decrement followed by increment of the activity of the two enzymes that are studied in the biochemical parameters of the fish, which ultimately resulted increase of free Amino acids.

***Keywords*:**

Chlorpyrifos, Organophosphate, *Channa punctata*, Total Proteins (TP), Aspartate Aminotranferase (AAT) and Alanine Amino Transferases (ALAT).

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Abstract No: 27

Assessing and Managing Environmental Impacts for Healthy Water Systems

Malsoor Thirumala

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Abstract:

Environmental Impact Assessment (EIA) has long been one of the most important tools as environmental and water quality management to secure the sustainable development of aquaculture and its inherent relationships. It pertains to the detection, forecast and analysis of the results of the interaction between man and nature on the water biosphere, the diversity of species and ecological stability. Water quality management has a major role in the maintenance of healthy aquatic environments by the measurement of specific parameters such as pH, dissolved oxygen, ammonia, nitrates, and turbidity. A suitable management approach entails, among other things, correct waste disposal practices, sustainable land-use management, and employment of biofiltration systems for polluting materials reduction. In case of poor water, quality loss exists producing diseases that may cause the supply or number of organisms in the ecological system to be lowered. Subsequently, the Best Management Practices (BMPs) that are necessary for the provision of sustainable production such as regular monitoring, integrated multi-trophic aquaculture (IMTA), and biosecurity measures are adopted. EIA coupled with water quality management ensures proper air, agricultural, and fish production remain in compliance with environmental and thus saves nature from suffering long-term damages. Some of the advanced technologies like remote sensing and GIS are utilized in environmental monitoring and decision-making. The understanding that we have to give priority to EIA and water quality management, it cannot be done at the expense of environmental conservation as we can then achieve an economic growth and environmental conservation balance that will allow preservation of these resources for future generations.

Keywords: Environmental Impact Assessment (EIA), water quality management, aquaculture sustainability, ecological balance,BMPs, biosecurity

Abstract No: 28

Sustainable Approaches to Disease Control in Shellfish Aquaculture

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ABSTRACT

Shellfish farming remains the heart and soul of aquaculture and is a significant supplier to the global world seafood. However, disease outbreaks are the most dangerous thing, that can cause the greatest damage to the sustainability and profitability of shellfish farming. Pathogens including bacteria, viruses and parasites can result in the most serious mortality, preventing the existence of species such as shrimp, oysters, and mussels. In the case of the shrimp, WSSV (White Spot Syndrome Virus), for oysters, Perkinsosis, and Vibrio infections which are all common diseases are some of the most prevalent diseases among them. Proper disease control is impossible without practical disease management strategies that are economically viable and biosecurity in farming systems. Practices designed to prevent the spread of diseases like site selection, water quality management, and biosecurity protocols are fundamental to disease control. The fact that health monitoring is regularly conducted and diseases are detected at their early stages through molecular diagnostics even before any symptoms occur is important because these are the means to prevent the spread of the diseases. Probiotics, immunostimulants, and vaccination are appearing as an alternative that is less harmful to the environment compared to antibiotic treatments. The main reason for this development is the emergence of disease-resistant strains arising from selective breeding programs as well. Additionally, integrated methods, including best management practices (BMPs) and environmental monitoring, are deemed very effective in disease prevention. Meaning as a whole, in the world of shellfish aquaculture, preventing disease will require an approach which will deal with the problems produced by it and at the same time be backed up by scientific innovations and the use of regulatory forms.

Keywords: Shellfish farming, Disease management, Aquaculture biosecurity, Pathogen control, White Spot Syndrome Virus (WSSV)

Abstract No: 29

The Role of Biofloc Systems in Aquaculture

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Abstract:

Biofloc technology (BFT) is an innovative and sustainable approach to aquaculture that enhances water quality, reduces feed costs, and improves overall fish and shrimp production. This system relies on the controlled cultivation of microbial communities, primarily composed of heterotrophic bacteria, algae, fungi, and protozoa, which convert organic waste into beneficial microbial biomass. The biofloc serves as an additional protein-rich feed source, reducing the reliance on conventional feed and enhancing the feed conversion ratio (FCR).One of the key advantages of BFT is its ability to maintain optimal water quality by reducing toxic nitrogenous waste, such as ammonia and nitrate, through microbial assimilation. This process minimizes water exchange, making it an eco-friendly solution that conserves water resources and limits environmental pollution. Additionally, biofloc enhances immune responses in aquatic species, leading to improved disease resistance and lower mortality rates.The implementation of biofloc technology in aquaculture has demonstrated significant improvements in production efficiency, sustainability, and profitability. As the demand for sustainable seafood increases, biofloc systems provide a promising solution for intensive aquaculture while reducing dependence on antibiotics and chemicals. Future research should focus on optimizing biofloc composition, nutrient dynamics, and species-specific applications to maximize its benefits in global aquaculture systems.

Keywords: Biofloc Technology (BFT), Sustainable Aquaculture, Microbial Communities in Aquaculture, Water Quality Management, Ammonia Reduction in Aquaculture

Abstract No: 30

Comparative Hazards of three pyrethroid insecticides *(Cypermethrin, Deltamethrin and Permethrin)* on zooplankton in freshwater fish ponds in Andhra Pradesh, India

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Abstract

Indiscriminate use of pesticides in aquaculture pose potential threat of contamination in freshwater bodies that exist within the vicinity due to direct application for controlling aquatic pests and seepage from agricultural lands through agricultural. Effect of three pyrethroid pesticides namely, permethrin (PMT), cypermethrin (CMT) and deltamethrin (DMT) on zooplankton in fish ponds revealed that numbers of zooplankton count declined to 87% in Cypermethrin treatment followed by Deltamethrin (84%) and 82% in Permethrin treatments. The effect of pyrethroids on diminishing numbers of zooplankton counts was not immediate but was visible after 48 hours of chemical treatment. Invariably, all the three chemicals were acutely toxic to macrozooplankton (Cladocera and Copepoda) at all concentrations ranging from 5 to 50 μg^{-L} while microzooplankton (Rotifera) showed acute toxicity at higher concentration (50 μg^{-L}). Despite the initial toxicity, the density of zooplankton returned to normal numbers in three weeks of post-treatment. However, the rotiferpopulations dominated the zooplankton community in post chemical treated periof.Interestingly diversity of zooplankton communities was significantly reduced in experimental stations that were exposed to permethrin.

Key Words:Pesticide Degradation, Cypermethrin, Deltamethrin, *Permethrin*

Abstract No: 31

Effect of Ectoparasitism on Length-Weight relationship and Condition Factor of Five Fish Species in River Penna, Kadapa, Andhra Pradesh

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Abstract:
This study aims to investigate the impact of ectoparasitic infections on length-weight relationships (LWR) and condition factor of five freshwater fishes of River Penna, Kadapa, Andhra Pradesh from three sampling sites between March, 2017 to March, 2018. Sampled fish were examined for ectoparasites and their associated pathologies according to standard protocols. Their lengths and weights were measured to determine the length-weight relationships and condition factors. A total of 465 fishes (122 *Labeo calbasu*, 45 *Mastacembelus armatus,* 70 *Mystus vittatus,* 130 *Oreochromis niloticus* and 95 *Wallago attu*) were sampled. Overall, 80% of the sampled fishes were infected with ectoparasites; *Labeo calbasu* (75.7%), *M. armatus* (91%), *M. vittatus* (77.1%), *O. niloticus* (68.4%) and *W. attu* (98.9%). The prevalence rates were significantly influenced by size ($P= 0.960$, $\chi2= 0.6256$, non-significant) and weight ($P< 0.00001$, $\chi2= 72.66$, significant) and negative allometric growth patterns ($b < 2$) were observed irrespective of the parasitic status of the fishes. There was strong positive correlation between the length and weight of the fish species ($r> 0.92$), except for *M. armatus* ($r> 0.066$). The mean condition factor (K) varied between 1.00 to 3.56 throughout in the study according to sex, species, season and ectoparasitic status of the fish. The results indicated that K factor of *M. armatus, W. attu* and *M. vittatus* was higher ($K> 2$) than *L. calbasu* and *O. niloticus* ($K< 2$). Male fishes showed slightly higher K factor than the female fishes during the summer and rainy seasons than winter season. The condition factor (K) of infected and uninfected fishes showed that the K factor of uninfected fishes was somewhat greater than that of infected fishes, with the exception of the K factor of infected *L. calbasu*, which was slightly higher than the uninfected *L. calbasu*. The present investigation concluded that ectoparasite infection has a substantial impact on LWR and condition factors of fish from the River Penna. The control of ectoparasitic infection of cultured fishes is vital for improved conditions, health and production yields in fishery sectors in India.

Abstract No: 32

Role of nanoparticles in fish disease management in Aquaculture: An overview

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Fish industry is an important sector of food production, providing nutritional security to the food basket, contributing to agricultural exports, and engaging millions of people in different activities. With diverse aquatic resources, any country can exhibits a sustained increment in fish production. In addition, the rapid growth of the human population has increased the demand for fish and fish products. Aquaculture is indisputably a booming industry ensuring food safety for the escalating population. However, this industry is under severe threat from bacterial, viral, parasitic, and fungal infections besides environmental contamination. Hence, in the recent days, new technologies are surfacing to confront these challenges efficiently. Nanotechnology is one of the novel and pioneering skills with a wide continuum of applications ranging from aquatic pond sterilization, water treatment, nutrient delivery, diagnosis, drug delivery, aquatic disease control, etc. Nanoparticles or nanomaterials of gold, silver, copper, zinc, selenium, chitosan, etc., emerged as potential alternatives to antibiotics. The application of nanomaterials in fish disease management promotes sustainable aquaculture. Nanoparticles of gold, silver, copper oxide, zinc oxide, selenium, chitosan, platinum helps in rapid and specific fish pathogen detection and treatment and control of fish diseases.

Abstract No: 33

Environmental Impact Assessment in Aquaculture

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ABSTRACT

Aquaculture is the farming of aquatic organisms such as fish, shellfish, and algae, is an essential source of food production worldwide. Nevertheless, its rapid expansion poses significant environmental challenges. This study presents a comprehensive Environmental Impact Assessment (EIA) of aquaculture practices, focusing on their ecological, social, and economic implications. The primary objectives of the EIA are to identify potential negative impacts of aquaculture operations, including habitat degradation, water pollution, biodiversity loss, and the introduction of invasive species. The assessment evaluates the effectiveness of mitigation measures, including water quality management, sustainable feed practices, and habitat restoration efforts, aiming to minimize the adverse effects of aquaculture on local ecosystems. Moreover, the EIA incorporates stakeholder engagement processes, ensuring that local communities, regulators, and industry stakeholders are actively involved in the decision-making process. Through a comparative analysis of different aquaculture systems (e.g., cage farming, pond systems, and integrated multi-trophic aquaculture), this study identifies best practices for sustainable aquaculture development. The findings emphasize the need for stringent regulations, adaptive management strategies, and innovative technologies to promote environmentally responsible aquaculture. By balancing ecological preservation with economic growth, the study aims to contribute to the development of more sustainable aquaculture practices and policies.

Keywords: Environmental Impact Assessment, Aquaculture, Ecosystem Services, Sustainability, Water Pollution, Biodiversity, Stakeholder Engagement, Mitigation Measures, Aquatic Habitat, Integrated Aquaculture.

Abstract No: 34

SUSTAINABLE AQUACULTURE PRACTICES: ENSURING ENVIRONMENTAL RESILIENCE

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Abstract

Sustainable aquaculture practices play a crucial role in meeting the increasing global demand for seafood while minimizing environmental impacts and supporting long-term resource availability. This abstract highlights the significance of sustainable aquaculture in ensuring environmental resilience and promoting responsible resource management.Sustainability in aquaculture involves the responsible cultivation of aquatic organisms to enhance food security, alleviate pressure on wild fish populations, and support economic development in coastal regions. By adopting sustainable practices such as reducing pollution, promoting habitat conservation, and implementing efficient waste management strategies, aquaculture operations can minimize their ecological footprint and contribute to ecosystem health.

Key components of sustainable aquaculture include the implementation of environmentally friendly technologies, adherence to best management practices, and engagement with stakeholders to ensure transparent decision-making processes. Monitoring water quality, mitigating disease outbreaks, and maintaining biodiversity are essential aspects of sustainable aquaculture management.In conclusion, sustainable aquaculture practices are essential for balancing the growing demand for seafood with the conservation of marine ecosystems. By prioritizing environmental resilience, aquaculture industries can foster a more sustainable and resilient future for both the environment and the communities that depend on aquatic resources.

Key Words: Aquaculture, sustainability, environmental resilience, responsible resource management, ecosystem health.

Abstract No: 35

Socioeconomic vulnerabilities of Fishermen Communities Near Paper Mill: A Critical Analysis

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Abstract:

This study undertakes a comprehensive examination of the socioeconomic conditions of fishermen communities residing near the Paper Mill in Rajahmundry. The findings reveal alarming concerns regarding the educational attainment, healthcare, and livelihood security of these communities. Child marriages, group fishing practices, and inadequate economic sources exacerbate their vulnerabilities.The fishermen face numerous challenges, including reduced fish varieties, declining quality and quantity, and inadequate infrastructure. Migration from Yanam and East Godavari has led to registration issues, with only 175 families registered in 2017. Inadequate housing, lack of access to basic amenities, and exposure to hazardous environmental conditions further compound their struggles.The study highlights the inadequacy of existing support systems, including the Matya Sakha Bharosa scheme, which provides insufficient financial assistance. The erosion of traditional fishing practices and the looming threat of fishing eradication necessitate immediate attention and policy interventions.This research emphasizes the need for a multidimensional approach to address the socioeconomic vulnerabilities of fishermen communities, ensuring their livelihood security, healthcare, and educational empowerment.Early marriagesuneducation, superstitions leads to weakness of women,kids are pure with nutritions like protein and calory they are looking like quashiorker andmerasmus due to no proper gap between two kids,female child are dropouts and settled as sibling care takers and household work helpers this leads tochildmarriages,nevuisms etc.

Keywords: fishermen communities, socioeconomic vulnerabilities, livelihood security, healthcare, educational empowerment, Kwashiorkor, Marasmus.

Abstract No: 36

Sustainable Aquaculture Management: Biofloc Technology Leads the Way

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ABSTRACT

Aquaculture is one of the fastest-growing sectors in animal-based food production in India. However, this rapid expansion faces significant challenges, including environmental degradation characterized by water quality decline, pollution, and disease outbreaks. To mitigate these issues, there is an urgent need to explore and implement advanced technologies that can enhance the sustainability and efficiency of aquaculture practices. Addressing these concerns is critical for the future growth and viability of the industry. Biofloc Technology (BFT) has emerged as a revolutionary approach to sustainable aquaculture, addressing critical challenges such as water pollution, feed costs, and resource efficiency. By converting toxic nitrogenous waste into protein-rich microbial biomass, BFT minimizes environmental impact while enhancing productivity and it has the potential to transform aquaculture into a more resilient and eco-friendly industry, aligning with global sustainability goals.This article explores the mechanisms, advantages, and challenges of BFT.

Keywords: Aquaculture;Technology; Biofloc; Sustainable.

Abstract No: 37

Effects of dietary immunostimulants on the muscle biochemistry of *Catlacatla*challenged with *Aeromonas hydrophila*

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Abstract
Fish are important because they give both people and animals vital nutrients that improve growth and health. Unfortunately, overcrowding and environmental problems, such as poor water quality and other stressors, can cause disease outbreaks in farmed fish. Furthermore, multidrug resistance has grown to be a significant global public concern. Consequently, the use of immunostimulants rather than chemotherapeutic methods to manage disease in aquaculture is growing significant. In such a scenario, screening for the impact of immunostimulants on the health of both healthy and pathogen-infected fish requires biomolecular evaluation. *Catlacatla* is a successfully cultivated freshwater species for consumption in India, owing to its significant nutritional and health benefits; however, there is little information on the effect of immunostimulants on *C. catla*. Therefore, in order to evaluate the impact of various immunostimulants on the biomolecular composition of both healthy and *Aeromonas*-infected *C. catla*, the study sought to quantify biomolecules from muscle tissues. According to the results of this investigation, oral administration of a variety of immunostimulants, such as vitamin C, vitamin E, chitin, chitosan, and levamisole, significantly raises the levels of proteins, lipids, carbohydrates, free amino acids, reduced glutathione, and carotenoids in both healthy and *Aeromonas*-infected fish, thereby increasing tolerance against pathogenic infection. Furthermore, levamisole, vitamin C, and vitamin E demonstrated the highest efficacy among the immunostimulants that were examined. The results of this investigation showed that adding immunostimulants can greatly improve *C.catla* growth, immunity, and survival rates.

Keywords:*Aeromonas*, *Catlacatla*, Immunostimulants, Biomolecules, Vitamin C, Levamisole.

Abstract No: 38

ENHANCING AQUACULTURE MANAGEMENT THROUGH TECHNOLOGY INTEGRATION

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Abstract:
Technological integration has become increasingly important in the management of aquaculture operations due to its potential to significantly improve efficiency, productivity, and sustainability. This abstract explores the key role technology plays in modern aquaculture management.Integration of technologies such as sensors, data analytics, automation systems, and IoT devices allows aquaculture managers to monitor and control various aspects of their operations in real-time. By collecting data on water quality, temperature, oxygen levels, feed consumption, and fish behavior, technology enables managers to make informed and timely decisions to optimize production processes and minimize risks.Furthermore, technology integration facilitates precision aquaculture practices, where resources are deployed more efficiently and targeted towards specific needs of the aquatic species being cultivated. This not only leads to higher productivity but also reduces environmental impact by minimizing resource wastage and pollution. Remote monitoring capabilities provided by technology allow aquaculture managers to oversee operations from anywhere, enabling quick response to emergencies and better management of daily activities. Additionally, advanced data analytics tools help in predicting trends, optimizing feeding schedules, and preventing diseases, resulting in improved stock health and overall profitability.In conclusion, the integration of technology in aquaculture management is essential for driving innovation, increasing efficiency, ensuring sustainability, and meeting the growing global demand for seafood. Embracing technological advancements is crucial for the future success of aquaculture industry in addressing challenges and maximizing opportunities for growth.

Keywords: Aquaculture management, Technology integration, Precision aquaculture, Sustainability, Efficiency, Data analytics, Remote monitoring, IoT devices, Automation systems.

Abstract No: 39

Histopathological Changesin Brain and Muscle Tissues of *Cirrhinus mrigala* Exposed to Cypermethrin (10% EC)

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Abstract:

Pesticides, essential for pest control, carry significant health and environmental risks. Their bioaccumulation poses a grave threat to fish survival, disrupting ecological relationships and biodiversity. Aquatic ecosystems, including fish populations, suffer from pesticide residue contamination due to improper disposal practices. This study investigates the acute toxic effects of Cypermethrin on *Cirrhinus mrigala*, emphasizing histopathological changes in fish tissues. Freshwater *Cirrhinus mrigala* were exposed to lethal and sublethal concentrations of Cypermethrin (10% EC) for 24 and 96 hours. Histopathological alterations were meticulously examined in the liver, brain, muscle, gill, and kidney tissues following exposure. Acute toxicity tests were meticulously conducted under controlled laboratory conditions. After 24 hours of exposure, mild degenerative tissue changes were discernible. However, upon extending the exposure to 96 hours, pronounced damage manifested in the liver, gill, brain, kidney, and muscle structures. The severity of lesions demonstrated a direct correlation with the concentration of Cypermethrin and the duration of exposure. This comprehensive study sheds light on the intricate interplay between Cypermethrin exposure and histopathological alterations in *Cirrhinus mrigala*, underscoring the critical need for stringent pesticide management strategies to safeguard aquatic ecosystems and their inhabitants.

KEY WORDS: *Cirrhinus mrigala*, cypermethrin, histology, hyperplasia, hypertrophy

Abstract No: 40

PREVALENCE OF VARIOUS VIRAL AND BACTERIAL DISEASES IN THE SELECTED CULTURE PONDS OF *LITOPENAEUSVANNAMEI*

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Abstract

The demand for aquaculture products continues to increase leads to prevalence of Shrimp diseases. These are common in aquaculture ponds due to water quality, temperature, farming system, stocking density, growth and survival rate, antimicrobial resistance and can cause economic losses. Hence, the present study was undertaken to determine the prevalence of various viral and bacterial diseases affecting the *Litopenaeusvannamei* in the culture ponds of coastal Andhra Pradesh with reference to Guntur (Yazaji) and West Godavari (Dindi). During the study various bacterial and viral diseases were identified and their virulence employing pathogenicity was observed with reference to shrimps in the culture ponds, where Post larvae was stocking directly from hatchery and stocking with nursery reared Post larvae. Both live and died shrimps were collected from the farms based on external symptoms. The biochemical and histopathological results confirmed infection with viral diseases such as White spot Syndrome Virus (WSSV);Bacterial diseases such as black gill diseases, white gut diseases, running mortality syndromeand nutritional diseases white muscle diseases, muscle cramp syndrome, Loose shell syndrome.The results encourage further studies on the efficacy of probiotics for disease control in shrimp farms.

Key words: White spot Syndrome Virus, white gut diseases, muscle cramp syndrome, and Loose shell syndrome.

Abstract No: 41

ROLE OF BIOFLOC TECHNOLOGYAND ITS IMPACTON AQUACULTURE SYSTEM

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Abstract:

The biofloc systems were designed to enhance the environmental control on production and it contains various types of microorganisms including bacteria, algae, and protozoa. Biofloc acts as a natural food source for cultivated species by converting waste productsinto essential nutrients for enhancing their growth and survival throughout the culture. Ithelps to prevent introduction of disease outbreaks in the farmdue to continues aeration andimproves immune response by providing beneficial bacteria but intermittent aeration suggesting energy cost reduction. Biofloc minimize risk of water exchange and prevents the exit of nutrients leads to reduction in the cost of dietsby improving feed conversion efficiency.It is useful to high density fish and shrimp culture ponds. It offers a solution to controls the environmental problems of Aquaculture by improving water quality through the balancing carbon and nitrogen ratio.Besides advantages it faces several challenges such as regular monitoring of water quality parameters which is directly related or dependent on the continues aeration performances of Biofloc, it is expensive and requires high power supply,might affect income generation and human wagedue to continues and strong aeration leads to high operation cost, lack of awareness about morphological and physiological characteristics of microorganisms.Continues disposal of suspended solids shows its impact on the health and growth status of the culture organisms. Biofloc system is applicable to filter feeders only such as *Litopenaeus vannamei* and tilapia. Hence, the study was undertaken to investigate the effects of continues and intermittent aeration to find out such disadvantages in detailed.

Key words: Water quality parameters, Microorganisms, *Litopenaeus vannamei*, Continues and Intermittent aeration

Abstract No: 42

Better Management Practices in Aquaculture: A Pathway to Sustainable and Productive Fisheries

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Abstract:

Aquaculture has emerged as a vital sector for global food security, providing a sustainable source of protein and economic stability. Conversely, it has also intensified the processes and has given rise to a number of problems including disease outbreaks, quality deterioration of water, and environmental damage. Implementing Better Management Practices (BMPs) is essential to address these challenges while ensuring sustainability and productivity.The major topic in the study is the exploration of the effectiveness of BMPs in aquaculture, with a particular focus on water quality management, biosecurity measures, disease prevention and the proper use of feed. By maintaining water quality with the help of dissolved oxygen, pH, ammonia and temperature, can prevent the diseases of aquatic species. Biosecurity protocols involving procedures such as quarantine, pathogen-free breeding material and disinfection methods will go a long way in the fight against these diseases, thereby reducing the use of antibiotics. Furthermore, the incorporation of responsible feeding strategies such as feed formulation optimization, proper feeding schedules and feed waste minimizationincreases feed conversion efficiency while at the same time decreasing the environmental load. In other hand, using ecosystem-based methods like Integrated Multi-Trophic Aquaculture (IMTA, a sustainable aquaculture method that uses the waste of one aquatic species to feed another) andpolyculture systems will optimize resources and maintain ecological balance. In this way, applying BMPs will induce not only production efficiency and profitability but also comply with sustainable aquaculture certification standards. By adopting BMPs, stakeholders in both aquaculture and sustainable fisheries can minimize environmental footprints, enhance productivity, and meet global demands for safe, high-quality seafood.

Keywords: Better Management Practices, Biosecurity, Sustainable fisheries, Feed management.

Abstract No: 43

Studies on physico-chemical parameters and selected Heavy Metals accumulation in River Krishna due to VTPS and other industrial pollution near Vijayawada, Andhra Pradesh, India.

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Abstract

India is rich in water resources being endowed with a network of rivers, lakes, ponds and streams. Rivers have significant positive impact on human civilization as they meet the demand of water for various uses including irrigation, domestic, industrial and aquaculture, besides having supporting roles for various flora and fauna. Most of the rivers in India are undergoing major ecological changes due to industrial effluents, urbanization and increased anthropogenic activities. The present study deals with the distribution of Heavy metals due to VTPS and other pollution in river Krishna at Vijayawada region. Heavy metals have been recognized as the dangerous elements to the aquatic ecosystem and cumulative effects of the metals leads to the health hazards to human beings even at low concentrations. The study focused on the water quality assessment of physico-chemical parameters and heavy metal distribution of water which affected due to the production activities of various industries in and around Vijayawada. The heavy metals that enter into water channel through industrial wastes at different stations which include Kondapally, Ibrahimpatnam, Tummalapalem and Gutupalli areas and they end up contamination the riverine ecosystem. Physico-chemical parameters such as water temperature, conductivity, pH, DO, water transparency, total hardness, total alkalinity, chlorides, Nitrates, Phosphates and total solids of the river Krishna were analyses from July 2022 to June 2023. The problem of contaminating the riverine environment necessitated the monitoring and management of the water quality assessment of the river Krishna at Vijayawada, Andhra Pradesh.

Keywords: Heavy metals, Sewage Pollution, River Krishna, Physico-Chemical parameters of water.

Abstract No: 44

Microbiological observations of *Mugil cephalus* from Krishna Estuarine Region, Andhra Pradesh, India.

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Abstract

Fish contamination due to various reasons is acute and chronic public health hazards with potentially devastating ecological and human health consequences. Globally, fish is one of the main sources of animal protein. Increasing population, urbanization and rapid growth of industrial activities is imposing severe demand on the limited fish protein without spoilage. The growing imbalance between supply and demand has already led to shortages owing to competition, which is likely to become more critical with time. The main objective of the present study is focus on the microbial hazards in the commercially important food fish *Mugil cephalus* from Krishna estuarine region. Weekly samples were collected from two different stations at Krishna estuarine region which includes Nagayalanka and Edurumondi at fish landing centers during different time intervals i.e., 6 AM, 8 AM and 10 AM for a period of 6 months. The collected samples were analyzed for contamination of selected pathogenic bacteria such as *E. coli*, *Staphylococcus aureus* and *Total aerobic plate count*. The results showed that the contamination was quite low at Nagayalanka as *TPC* was 10.42 (cfu/mg 10^6) and *S. aureus* was 4.40 (cfu/mg 10^6) and *E. coli* was 8.24 (cfu/mg 10^6). The level of contamination increased with increase in time. The present study concluded that the fish contamination with pathogenic bacteria is higher in the Edurumondi compared with Nagayalanka. Thus the problem necessitated the monitoring and management of food safety standards.

Keywords: Microbiological analysis, *Mugil cephalus*, comparative analysis and River Krishna.

Abstract No: 45

Food and feeding strategies of flathead mullet *Mugil cephalus* (Teleostei: Mugilidae), from Krishna estuary Andhra Pradesh

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Abstract:

The flathead grey mullet, *Mugil cephalus*, is one of the mullet fishery, genus Mugil, family Mugilidae and Order Mugiliformes. It is a brackish water fish also can thrive well in fresh water and marine waters. Study on the food and feeding habits of *Mugil cephalus* was recorded from June, 2022 to May, 2023 at monthly intervals from Krishna estuary from Andhra Pradesh. Observation of feeding habits indicated that the grey mullet as omnivorous feeder. Total 120 specimens in length range 124 to 355 mm were subjected into analysis for food and feeding habits. In adult fish the analysis of the gut revealed that the Bacillariophyceae (Diatoms), Myxophyceae, Dino-flagellates, copepods and polycheatae worms along with sand and mud were the prominent representatives of this species. The volume of the gut was maximum in the months of August and September, low in the month of April and May was observed in both males and females.The Gastro Somatic Index of males and females was observed and ranged between 4.5% - 7.5% in males and females goes to 4.1% - 7.4%. The range of physico-chemical attributes within these environments necessitates a wide tolerance to differing conditions, especially with regard to salinity, dissolved oxygen and temperature, all of which are discussed in this study.

Keywords: *Mugil cephalus*, Food composition, feeding **s**trategies, Gastro Somatic Index

Abstract No: 46

Precision Aquaculture: Implementing Automatic Seed Calculators to Optimize Post-Larvae Stocking in Shrimp Ponds

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The optimal stocking density of post-larvae (PL) in shrimp farming is crucial for maximizing growth rates, ensuring shrimp health, and achieving economic efficiency. Traditional methods often rely on manual calculations and subjective assessments, which can lead to inaccuracies such as overstocking or understocking, resulting in suboptimal growth, increased disease susceptibility, and inefficient resource utilization. The introduction of Automatic Seed Calculators offers a technological advancement to address these challenges. These devices utilize advanced algorithms and real-time data inputs to provide precise calculations for optimal PL stocking densities. By considering factors such as pond dimensions, water quality parameters, species-specific growth rates, and desired harvest outcomes, these calculators enable farmers to make informed decisions regarding stocking practices. Implementing Automatic Seed Calculators can lead to enhanced accuracy, improved growth performance, resource efficiency, and environmental sustainability. However, adoption presents challenges, including initial investment costs, the need for technical proficiency, and dependence on technology. Despite these challenges, integrating Automatic Seed Calculators represents a significant step toward precision aquaculture, contributing to enhanced productivity, economic gains, and sustainable practices in shrimp farming.

Keywords: Automatic Seed Calculator, Post-larvae (PL) stocking density, Aquaculture technology, Feed conversion ratio (FCR)

Abstract No: 47

PROBIOTIC BACTERIAL EFFECT ON SHRIMP CULTURE PONDS

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The production and growth of shrimp grown in the ponds is greatly influenced by environmental factors such as water temperature. Temperature readings of the control and experimental ponds were recorded at regular intervals of time. If both control and experimental ponds were examined the minimum temperature recorded on day 1to 120, from there onwards the temperature slightly increased till 45 days. Then again falls a bit then again slightly increases at 75 days, after decreased slightly. The temperature was increasing with during of the culture period but the increase was not so significant where the minimum temperature recorded was 27.0^{o}C. the slight variation in temperature may be due to climate change and seasonal variation. Since aquatic species are cultured under different conditions salinity and optimum temperature range should also be considered for selection of the right probiotic strain. Naturally the temperature of the water body was influenced by season, weather and solar intensity and not much by any external factors or added substances. There was no significant difference in the pond water temperature of *P. monodon* when treated with commercialwater probiotic for a period of 109 days. Therefore, temperature is a major environmental factor controlling microbial growth and the ideal condition differ among microorganisms. It reported that optimum temperature for the rapid growth is size specific, as the shrimp size increases the optimum temperature decrease. For large shrimp the optimum temperature is about 27^{o}C and for the small shrimp the optimum temperature is greater than 30^{o}C. the optimum water temperature for best growth is reported as in range of 24^{o}C to 32^{o}C. Based on the research results of growth and survival of *P. semisulcatus* carried out. It was confirmed that the best temperature and salinity combination for culture of *p. semisulcants*was 30^{o}C and 30 ppt. the polyculture of milkfish *Chanos chanos* and whiteleg shrimp *L.vannamei*require optimum temperature of 19-32.1^{o}C for better growth and production. When compared to monoculture of shrimp. The higher survival rate in *Penaues. Monodon* when cultured in temperature range of 32^{o}C to 36^{o}C in laboratory conditions. It obseverd that growth coefficient was elevated in ponds with temperature above 25^{o}C.

Abstract No: 48

Antibioticsand its impact on fishes and their organ systems

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Abstract:

Antibiotics which are commonly used by farmers for the fishcultivation. Nowadays Some antibiotics are used to control the diseases. Tetracycline is one of the antibiotics.Over usage of antibiotic effects, the animals and humans when they breathed in and it irritates the skin causing rash or burning, it may damage the liver and kidney. It is identified and determined by collecting the blood and tissue samples of some fishes. Exposure of antibioticare low effective some times, butnot effect organismswhen we use it in limited or properamount. But these days chemicals are also mixed and shows impact and effect of organ systems.There are some tests to find out the exposure and effects of these antibiotic.

Key words: Antibiotic, Fish cultures, Tissues and blood samples.

Abstract No: 49

Oxygen consumption of freshwater fish *Catlacatla* exposed to Ethion (50% EC)

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Abstract:

Fish serves as a high-protein diet for many people all over the world, but indiscriminate use of pesticides has reduced fish growth, nutritive value, and oxygen supply. Hence, the present study was to investigate the effects of acute toxicity of an organophosphate pesticide Ethion, on the oxygen consumption of freshwater fish *Catlacatla* for a period of 24h at regular intervals of 2h. For the determination of oxygen consumption, test fish were acclimatized for 7 days to 15days in laboratory conditions and exposed to Ethion (50%EC) for 96h LC_{50} lethal (2.8µg/l) and sublethal ($1/10^{th}$ of 96h LC_{50}i.e., 0.28µg/l) concentrations respectively. In the current study, the oxygen consumption of fish at 2h in control (0.724), lethal (0.806) and sublethal (0.716) and after 20h in control (0.496) and sublethal (0.380) were observed. In lethal concentrations, a significant increase in oxygen consumption was observed i.e., 1 to 6 h, and while in control and sublethal concentrations without fluctuations decrease continuously. The obtained results showed an initial increase in the rate of oxygen consumption with increased exposure periods.

Keywords:Oxygen consumption, *Catlacatla*, Ethion (50%EC), Lethal and Sublethal concentrations.

Abstract No: 50

Enhancing Shrimp Farming Efficiency and Sustainability: The Role of Moving Automatic Feeders in Optimizing Feed Conversion Ratios

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Moving automatic feeders are an innovative solution in shrimp farming, helping to solve problems like uneven feed distribution, poor Feed Conversion Ratios (FCRs), and environmental harm. Unlike fixed feeders, these machines move around the shrimp pond, spreading feed evenly so all shrimp have equal access to food. They use real-time data from sensors to deliver the right amount of feed based on shrimp activity and environmental conditions. This reduces waste, improves shrimp growth, and leads to better FCRs. By preventing leftover feed from piling up, they help keep the water clean and reduce pollution. These feeders come with advanced features like GPS navigation, IoT connectivity, smart feeding programs, and mobile controls for easy monitoring and adjustments. They save energy and reduce labour needs, allowing workers to focus on other tasks. However, there are some challenges, such as high upfront costs, regular maintenance needs, and issues like power outages disrupting feeding schedules. Despite these drawbacks, the long-term advantages like lower feed costs, healthier shrimp, and a cleaner environment make moving automatic feeders a valuable tool for sustainable and profitable shrimp farming.

Keywords: Feed Conversion Ratio (FCR), Precision feeding, Aquaculture innovation, Sustainable aquaculture, IoT in aquaculture, Labor-saving technology, Smart feeding systems.

Abstract No: 51

Exploring the Impact of Regular Fish Intake on Cardiovascular Health.

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Abstract:

If you're worried about your heart health, eating at least two servings of fish a week could reduce your risk of heart disease.The American Heart Association (AHA) recommends eating fish rich in unsaturated fats at least twice a week. All fish are a good source of protein, vitamins and minerals. But fatty fish contain omega-3 fatty acids. Omega-3s and other nutrients in fish may improve heart health. They also may lower the risk of dying of heart disease.Some people may worry about mercury or other heavy metals in fish. But the benefits of eating fish as part of a healthy diet usually outweigh the possible risks of exposure to contaminants. Omega-3 fatty acids are a type of unsaturated fatty acid. They may lower inflammation in the body. Inflammation in the body can hurt blood vessels. Blood vessel damage may lead to heart disease and stroke. Omega-3 fatty acids may: Keep the heart healthy by slightly lowering blood pressure. Lower levels of fats called triglycerides in the blood, Lower the risk of irregular heartbeats, Eat at least two servings a week of fish, especially fish that's rich in omega-3 fatty acids, Good omega-3-rich fish options include: Salmon, Sardine, Atlantic mackerel, Cod, Herring, Lake trout, Canned and light tuna. Most adults should eat two servings of omega-3-rich fish a week. A serving size is 4 ounces (113 grams) or about the size of a deck of cards.We get heart-healthy benefits from a variety of seafood and fish that are typically low in mercury, such as salmon and shrimp.If we eat a lot of fish containing mercury, the toxin can build up in your body. It's unlikely that mercury would cause any health concerns for most adults. But mercury is very harmful to the development of the brain and nervous system of unborn babies and young children.A little bit of mercury occurs naturally in the environment. But pollution from factories and other industries can produce mercury that collects in lakes, rivers and oceans. That pollution can end up in the food that fish. If we take at least two servings a week of fish, especially fish that's rich in omega-3 fatty acids. Doing so appears to reduce the risk of heart disease, particularly sudden cardiac death. This data we collected from Prakasam district surroundings hospitals. Our conclusion isResearch aimed at increasing productivity and sustaining productivity gains in the long run to meet the demand of the growing population should be continued. In order to improve poor people's access to fish consumption, development studies of fast-growing and disease-resistant species should also be continued. Research on fish nutrition should be undertaken in order to develop cheap but quality feed. Identification of potential future constraints to sectoral growth is an equally important area of research. “Prevention is better than cure.we can’t stop heart diseases but we can prevent it by intake of healthy fish food.”

Key words:*Fish, Omega-3 fatty acids, Heart health, cardiac arrest.*

Abstract No: 52

Impact of Water Pollution on Aquatic Species: A Comprehensive Overview

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Abstract:

Water pollution, stemming from a multitude of anthropogenic activities, poses a significant threat to aquatic ecosystems and their diverse inhabitants. This abstract provides a comprehensive overview of the pervasive impacts of water pollution on aquatic species, encompassing various pollutant types, exposure pathways, and biological consequences. Excessive nitrogen and phosphorus inputs from agricultural runoff and sewage discharge lead to eutrophication, characterized by algal blooms, oxygen depletion, and subsequent fish kills. In additionindustrial effluents, mining activities, and urban runoff introduce heavy metals like mercury, lead, and cadmium, which accumulate in aquatic organisms and cause toxic effects. Agricultural and domestic use of pesticides, Plastic debris, particularly microplastics, contaminate aquatic ecosystems through littering and improper waste disposal. Aquatic organisms ingest these plastics, leading to physical damage, internal injuries, and potential bioaccumulation of toxic chemicals. The biological consequences of water pollution on aquatic species are diverse and can range fromPhysiological Stress, Immune Suppression, Endocrine Disruption, Genetic Damage, Behavioral Changes, Community Structure Alterations and Biodiversity Loss. Addressing this challenge requires a multifaceted approach, including stricter regulations on pollutant discharge, implementation of sustainable agricultural practices, improved wastewater treatment technologies, and public awareness campaigns to reduce pollution at its source. Understanding the complex interactions between pollutants, exposure pathways, and biological impacts is crucial for developing effective strategies to protect aquatic species and maintain healthy aquatic ecosystems.

Key words: Water pollution, Aquatic species, Industrial effluents, Heavy metals

Abstract No: 53

Environmental Impact Assessment of a twenty year old Aquaculture at Pedavadlapudi – Guntur.

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Abstract:

The environmental impact in aquaculture at Pedavadlapudi is the main source of the farmers of that locality to raise the aqua food product. The study was made to analyze the environmental factors that affect the aquaculture in that particular village, and the area is not that well developed. Based on the results and considering demands of the urgency continuous articulations among technical areas, administrative tools and policies to increase the sustainability standards of aquaculture. The Environmental Impact Assessment is the main tool for decision making aimed at advancing evaluation of aquaculture projects and its potential impacts as well as promoting measures to minimize repair in aquaculture at Pedavadlapudi. The EIA establishes a set of reference standards to evaluate compliance with the supervision process in the operation stages. Larger and smaller aquaculture projects have a potential for significant environmental impact, encouraging responsible and sustainable aquaculture development. It also ensures that natural resources including biodiversity will be also available to future generations. "This research paper presents an Environmental Impact Assessment (EIA) of a privately-owned aquaculture pond in Pedavadlapudi, Mangalagiri, Guntur District, Andhra Pradesh, India. Established 20 years ago, the pond has faced financial losses for the past four years, despite an initial investment of ₹14 lakh. The study assesses environmental factors affecting aquaculture in the region, including water quality degradation, biodiversity impact, and disease transmission. The findings emphasize the need for improved water management, disease control, and regulatory compliance to ensure long-term sustainability. The study recommends proactive mitigation strategies, such as effluent treatment, optimized feed management, and economic analysis, to enhance aquaculture sustainability while minimizing environmental harm."

Keyword: Environment Impact Assessment in Aquaculture: Pedavadlapudi, Mangalagiri- Guntur.

Abstract No: 54

Advancements in Commercial Sanitizers for Shrimp Culture: Balancing Pathogen Control and Microbial Stability for Sustainable Aquaculture

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Abstract

The use of commercially available sanitizers in shrimp aquaculture is crucial for reducing mortality and maintaining a balanced microbial ecosystem. This review explores recent advancements in sanitizers that effectively control pathogens while preserving beneficial microbiota in shrimp ponds. Commonly used sanitizers include chlorine compounds, quaternary ammonium compounds (QACs), peracetic acid, hydrogen peroxide, and iodine-based disinfectants. These sanitizers play a vital role in minimizing disease outbreaks caused by pathogenic *Vibrio* spp. and other opportunistic microbes. Recent studies highlight the growing concern over indiscriminate use of sanitizers, which may disrupt the pond's natural microbial balance, leading to antibiotic resistance and stress-induced shrimp mortality. To counteract these issues, eco-friendly alternatives such as plant-derived extracts, bio-based disinfectants, and probiotics-enriched sanitizers are gaining attention for their selective antimicrobial activity and lower environmental footprint. Strategies such as controlled dosing, alternating sanitizer use, and integrating probiotics with sanitizers have shown promise in maintaining optimal water quality and a stable microbial community, reducing stress on shrimp populations. However, advancements in nanotechnology-based sanitizers and bio-compatible formulations offer improved pathogen control while minimizing harm to beneficial microbiota. Regulatory guidelines emphasize responsible sanitizer application to ensure environmental sustainability, reducing mortality and fostering a healthy microbial environment for sustainable aquaculture practices. Future research would focus on optimizing sanitizer-probiotic synergies and developing targeted formulations that enhance disease resistance without disrupting beneficial microorganisms.

Keywords: Shrimp culture, sanitizers, microbial balance, probiotics, aquaculture sustainability, eco-friendly disinfectants, nanotechnology-based sanitizers.

Abstract No: 55

Polyculture in Aquaculture: A Sustainable Approach for Enhanced Productivity and Ecological Balance

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Abstract:

Polyculture is a way of producing more than one species of fish in the same system, which is a sustainable method to aquaculture that means more sustainability, higher productivity, and a better ecological balance. Also, by combining species with complementary feeding habits and who fill different ecological roles, polyculture reduces the competition and therefore, the nutrient cycling systems described in the text can be more efficient. Moreover, this approach can decrease the costs of feed, eliminate pests and diseases, and improve water quality as a whole. Polyculture is commonly practiced through fish-fish combinations (like carp polyculture with *Catlacatla, Labeorohita,* and *Cirrhinusmrigala*), fish-shrimp integration, and fish-seaweed sides. The fast growth of the fish for producing food and their ability to withstand environmental conditions are keys to the selection of the right species to combine. A smiling polyculture farm allows the right combination of the stocking density, the right feeding regime, and water parameters to be employed for maximum production with minimized competition. Feeding the system is by no means the only way polyculture contributes to sustainable aquaculture. By fostering a greater variety of life forms, polyculture can ultimately make the whole system more resilient and thereby reduce environmental issues. On the contrary, infections, fights for territory and hierarchy, and the complexity of management are the some most important among aforementioned challenges to be addressed for better results. Equipment and technical progress will further improve polyculture systems, thus ensuring their key role in the development of global aquaculture.

Keywords: Polyculture, Aquaculture, Sustainable Farming, Biodiversity, Integrated Systems.

Abstract No: 56

Biofloc Application Using Aquaponics and Vertical Aquaculture Technology in Aquaculture.

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ABSTRACT

In aquaculture, biofloc technology has become available and eco-friendly method that promotes waste reduction and water quality control. An overview of the use of biofloc technology in vertical aquaculture and aquaponics systems is what this paper attempts to deliver. We go over the fundamentals of biofloc technology, its advantages, and how it works with vertical aquaculture and aquaponics. The review emphasizes the benefits of employing biofloc-based systems, such as enhanced water quality, faster fish growth, and lower feed expenses. We also look at the difficulties and restrictions that come with using biofloc invertical aquaculture and aquaponics, including system design, water quality control, and biofloc stability. Lastly, we offer suggestions for further study and advancement to get over these obstacles and encourage the use of vertical farming and biofloc-based aquaponics systems for aquaculture. This article discusses the advantages and disadvantages of using biofloc technology (BFT) in aquaculture. Using particular microbial communities, BFT is a closed aquaculture method that eliminates ammonia and enhances water quality. The benefits of BFT, such as higher output, better water quality, less disease transmission, and lower pollution, are covered in the study. The study does, however, also highlight the drawbacks of BFT, including the need for costly aeration equipment, the accumulation of dissolved nutrients and total suspended solids (TSS), and the quick fluctuations in water quality. The review suggests combining BFT with other aquaculture methods, like vertical aquaculture and aquaponics, to get around these restrictions. This integration can speed up aquaculture's urbanization, remove geographic restrictions, and increase the value and effectiveness of BFT. The article comes to the conclusion that BFT integration with vertical aquaculture and aquaponics has room to grow and can support sustainable aquaculture methods.

Keywords: Biofloc technology, aquaponics, vertical aquaculture, sustainable aquaculture, water quality management, integrated aquaculture, integration possibilities of biofloc and vertical Aquaculture technology.

Abstract No: 57

Prevalence, biofilm, antimicrobial susceptibility and pathogenicity potential of Aeromonads isolated from *Labeo rohita* (Hamilton, 1822) of India

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ABSTRACT

Aeromonads are major pathogens in aquatic animals and humans, causing diverse infections due to multiple virulence genes. We isolated 102 strains of five *Aeromonas* species (*A. veronii, A. dhakensis, A. jandaei, A. popoffii, A. piscicola*) from infected *Labeo rohita* in West Godavari and Nellore, Andhra Pradesh, India. Identification was performed using API 20E biochemical tests and 16S rRNA and *gyrB* gene amplification. *A. veronii* (66.67%) was the most prevalent. The 16S rRNA sequences have been submitted to GenBank (MZ540300-MZ540306). Nine virulence factors, including aerolysin, hemolysin, elastase, and serine protease, were detected by PCR, with elastase being the most common. An *in vivo* challenge test with *A. veronii* strains revealed no correlation between the number of virulence genes and mortality. The lethal dose (LD_{50}) was 10^6 cfu/ml for strains carrying aerolysin, cytotoxic enterotoxin, and serine protease. Biofilm production varied from weak (49%) to moderate (50.9%). Antimicrobial susceptibility testing showed multiple drug resistance to penicillins, β-lactams, and tetracyclines, but sensitivity to gentamycin (24%). These findings highlight the need for improved disease management strategies to reduce *Aeromonas* infections in aquaculture.

Key words: *Aeromonas*, *Labeo rohita*, biofilm, antibiotics, Pathogenicity.

Abstract No: 58

Implication of Artificial Intelligence for Sustainable development in Aquaculture; An overview

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ABSTRACT

The application of Artificial Intelligence in sustainable aquaculture is transforming the industries in various ways. AI – powered system are being used to optimize aquaculture operations, enhance productivity and reduce labor costs. Aquatic farming has been considered, during the last decades, as the fastest growing food production industry powered by governmental and implication of Artificial Intelligence. Similarly to most of the human food production activities, Aquaculture raised several issues related to environmental welfare and consumer safety. The most privileged technology of these out running days, Artificial Intelligence has been involved for better output in Aquaculture. Involvement of AI in aquaculture have out boxed many related issues like monitoring fish behavior ,fish growth and breeding estimation , biomass estimation, disease detection and many allowing aquaculture stakeholders to take timely preventive measures and subsequently make the proper decision in an appropriate time. The impacts of activities in the environment are through many causatives like waste offloads, introduction of alien species, genetic interactions, disease transfer, release of chemicals, are mostly considered impacting blue economy. Also the consumer safety issues related to the farming are assessed, including generation of antibiotic-resistant microorganisms; contaminants are being transferred to human through food chain. Within these, the major literature findings are examined that mainly focuses on; a) to ensure sustainability, b) to balance risks to public with sustainable environmental costs. The integration of AI in sustainable aquaculture has the potential to transform the industry, enabling farmers to produce high quality sea food while minimizing their environmental food print.

Keywords: Artificial Intelligence, blue economy, sustainability, environment, government, food production

Abstract No: 59

The relationship between gut microbiota and neonatal jaundice

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Abstract: Neonatal jaundice is a common disease and it occurs globally about 60% of full-term and 80% of pre-term neonates in the first week of life. Several factors are contributing for physiologically elevated unconjugated bilirubin in serum including iso-immunization, dis-regulated gut microbiota, genetic alterations and environmental factors (Chen & Yuan, 2020; Ding *et al.,* 2021). There are studies on the association between neonatal jaundice and adverse long term health outcomes, such as childhood asthma, type-I diabetes, and impaired visual function. However, the data available on the role of gut microbiota in neonatal jaundice is limited. So that it is essential to understand the relationship between the gut microbiome and neonatal jaundice pre- and post-treatment. Bilirubin is a yellow pigment, breakdown product of RBC that turns the skin and whites of the eyes yellow if it accumulates in the body, the so called jaundice. However, the genes for enzyme essential for bilirubin breakdown are not found in human body. In the 1970s, researchers found that the gene for this enzyme found in a few bacterial species which breakdown bilirubin, revealing that the human gut's microbial tenants take over the process. When bilirubin passes through the gut, it is either broken down by bacteria and expelled from the body or reabsorbed where it accumulates. The few known bilirubin digesting bacteria belong to the phylum Firmicules (Kamal, 2024), Proteobacteria, Actinobacteria and Bacteroidetes. At the genus level, the key bacterial genera include *Streptococcus*, *Escherichia*, *Klebsiella*, *Enterococcus*, *Veillonella*, *Bacteroides*, *Rothia*, *Clostridium*, *Salmonella* etc. Bilirubin reductase (BilR), principal enzyme produced by gut microbiome that reduces bilirubin to urobilinogen under physiological conditions, most urobilinogen reabsorbed from the intestine is taken up by the liver and re-excreted in the bile. The primary biological role of BilR pathway is to enhance bilirubin catabolism in the gut lumen, thus preventing its re-absorption into the portal and systemic circulation. This mechanism is particularly significant in the pathogenesis of severe neonatal jaundice. But neonates born with a sterile intestinal tract, bilirubin catabolism does not occur in the gut lumen (Vitek, 2025). Currently, phototherapy is the most widely used, effective, and safe method to reduce serum bilirubin levels and prevent severe hyper-bilirubinemia in infants. Breast milk also support the development of a healthy gut microbiota, which may play a role in preventing jaundice in breast fed infants. Further studies are required to understand the relationship between phototherapy and gut microbiome.

Key words: Bilirubin, Bilirubin reductase, Hyper-bilirubinemia, Jaundice, Microbiome.

Abstract No: 60

The Role of Probiotics in Aquaculture: A Sustainable Approach

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ABSTRACT

Probiotics are a fantastic discovery that has come to be a good alternative to antibiotics in aquaculture. They play an important role in the improvement of water quality, growth enhancement and reinforcement of disease resistance in aquatic species. These beneficial microorganisms, including *Lactobacillus, Bacillus, Pseudomonas*, and *Saccharomyces* species play a crucial role in maintaining a balanced microbial ecosystem within aquaculture systems. Probiotics are indeed a part of the water quality management system as they limit the ammonia, nitrite, and organic matter accumulation, and thus minimize the development of toxic conditions that can be stressful to the aquatic organisms. They are also responsible for the absorption of necessary nutrients as well as the digestion of organic matter. This results in more efficient feed conversion and increased growth rates. One of the most significant advantages of probiotics is their role in disease prevention and immune system modulation. By inhibiting the growth of pathogenic bacteria such as *Vibrio spp., Aeromonas spp.,* and *Pseudomonas spp.,* probiotics reduce the incidence of infections, lowering the need for antibiotics and chemicals. A further benefit of the application of probiotics can also be seen in the gut health through the initiation of beneficial intestinal microflora, while enhancing digestion, and promoting resistance to the existing stressful conditions. Probiotics can be used successfully in aquaculture as long as the right strain in right way through feed, water or bioencapsulation is used. This study underscores the utility of probiotics in enhancing productivity, disease control, and environmental management, thus giving them a very crucial place in the future of aquaculture.

Keywords: Probiotics, Aquaculture, Disease Prevention, Water Quality, Gut Health

Abstract No: 61

Disease Management in Finfish Aquaculture

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ABSTRACT

Disease management is an important subject for long-term finfish aquaculture, as deviations can lead to the loss of much product. aquaculture facilities and the threat of seafood scarcity throughout the world. Efficient disease control strategies consist of a blend of preventive, diagnostic, and therapeutic strategies to decrease fish mortality and to keep the healthy. Preventive measures such as proper biosecurity for farms, vaccination, and probiotics are essential in the education of the risk of diseases caused by bacterial, viral, fungal, and parasitic infections. Water quality management is key to this, as bad environmental conditions can affect fish, making them prone to diseases. Application of dissolved oxygen, pH, ammonia, and temperature is a very good way to escape the diseases of fish at the early stage of infection. Moreover. molecular diagnostic tools like PCR and ELISA have fastened the identification of the infections, hence, the medication and prevention interventions have been done at the right time. Antibiotics and chemotherapeutic, though, are known to be efficient, but they entail the risks of antimicrobial resistance and environmental contamination. So, alternative strategies such as immunostimulants, herbal extracts., and biofloc technology are now being presented as sustainable disease management solutions. IOT (Internet of Things) and artificial intelligence (AI) have not only made real-time disease prediction possible but also provided early warning systems in aquaculture. A holistic and green approach toward disease management is thus indispensable to ensure the long-run sustainability and productivity of the finfish aquaculture sector.

Keywords: Finfish Disease Management, Aquatic Animal Health, Fish Pathogens, Biosecurity in Aquaculture, Water Quality and Fish Health, Vaccination in Aquaculture

Abstract No: 62

Managing Water Quality for Aquatic Ecosystems: Approaches to Environmental Impact Assessment

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Abstract:

Environmental Impact Assessment (EIA) and water quality management are crucial tools for sustainable aquaculture and fisheries development. EIA evaluates the potential ecological consequences of projects, ensuring that environmental degradation is minimized. It involves systematic analysis of physical, chemical, and biological parameters to assess the impact on aquatic ecosystems. In fisheries and aquaculture, EIA helps identify pollution sources, habitat destruction, and biodiversity loss, thereby guiding policymakers in implementing mitigation measures.Water quality management is integral to maintaining a balanced aquatic environment. Key parameters such as dissolved oxygen, pH, temperature, salinity, ammonia, and nutrient levels must be monitored to prevent water pollution and disease outbreaks in fish populations. Proper waste disposal, biofiltration, and integrated multi-trophic aquaculture (IMTA) are some strategies to enhance water quality. Sustainable practices like recirculating aquaculture systems (RAS) and constructed wetlands further contribute to reducing environmental stress.A well-structured EIA, coupled with effective water quality management, promotes responsible fisheries and aquaculture, ensuring long-term productivity and ecosystem stability. Future research should focus on innovative monitoring technologies, climate change adaptation, and policy frameworks to enhance sustainability. By integrating scientific assessments with practical management strategies, we can achieve a balance between economic growth and environmental conservation in aquatic resource management.

Keywords: Environmental Impact Assessment (EIA), Water Quality Management, Sustainable Aquaculture, Fisheries Management, Aquatic Ecosystems, Water Pollution.

Abstract No: 63

Sodium fluoride (NaF) induced oxidative stress in developing brain of rats – Protective effects of *Abelmoschus moschatus* seed ethanolic extract

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ABSTRACT

This study is aimed to investigate the protective effects of *Abelmoschus moschatus* seed extract against sodium fluoride (NaF) induced oxidative stress in developing brain of rats. Fluoride induced oxidative stress operates through the alterations in the levels of oxidative stress marker enzymes viz. LPO, SOD, Catalase (CAT), GSH and GPx which increase the neural cell damage and death. Excessive intake of NaF during pregnancy crosses the blood brain barrier (BBB) and cause adverse effects on neonatal development. As the BB in fetuses, neonates and infants is immature, it cannot provide protection against the entries. *A. moschatus* pods are rich in phenolic compounds mainly composed of oligomeric catechins and flavonol derivatives, whereas the polyphenolic profile of the epidermis is composed principally by hydroxicinnamic and quercetin derivatives. Because all of these, okra flour has been found to possess anti-oxidant properties. The pregnant wistar rats were randomly categorized into four groups of five animals each. Group I is of control rats received normal tap water. Group II rats exposed to NaF with 20ppm (or 20 mg kg^{-1} body wt.) in their drinking water throughout the gestational period. Group III rats were treated with *A. moschatus* seed ethanolic extract (AMEE) 300 mg kg^{-1} body wt./day/rat along with NaF water (20 ppm). Group IV treated with plant extract alone at the rate of 300 mg kg^{-1} body wt./day/rat. On 1^{st}, 7^{th}, 14^{th}, 21^{st}, and 30^{th} day (post partum days), the pups were sacrificed, brain were dissected out to assess the oxidative stress markers. The increased levels of LPO ($p<0.05$) and decreased enzymatic activity of SOD, CAT, GSH and GPx ($p<0.05$) were reported in NaF treated experimental rats with compared to control. The rats received plant extract along with NaF treated rats showed a significant reversal in oxidative stress markers. In conclusion, the fluoride produces excess free radicals, leading to oxidative stress which results in neurodegeneration and underlying alterations in behavior and learning. Treatment with AMEE reduces the oxidative stress and restores nenurodegeneration may because of the presence of antioxidants like quercetin, rutin, catechin, epicatechin and procyanidin, etc. in the extract of *A. moschatus.* However, further studies are required to understand the exact mechanism of components' neuroprotective effects of *A. moschatus* seed extract. Key words: *A. moschatus*, Catalase, Fluoride, Oxidative stress, Neurodegeneration.

Abstract No: 64

Review on Bio-security and Disease management in Aquaculture practices

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ABSTRACT

The aquaculture industry's sustainable development is dependent on critical pillar, known as bio-security in aquaculture. The principal objectives of bio-security are obtaining healthy stock, optimizing their health, focuses on preventing, early detection, effective control measures or eliminating pathogens, educating and managing staff and visitors. Seafood like fish, crustaceans, mollusks etc. are an important, highly nutritious food commodity with high market demand and also important contributor to global food security. Recent global aquaculture production data shows that the aqua industry over forth coming years, to fill the demand and supply gap. Managing a good bio-security is a wide spectrum and multi-factorial thing. This article mainly focuses on vital importance of bio-security in aquaculture, highlighting its role in protecting aquatic population s' health, assuring sustainability and contributing world food security. Bio-security in aquaculture implies its holistic disease prevention, control and management practices which reduce the risk of spreading infectious diseases and reduce stress to the animals. With the global threat of emerging infectious diseases and the need for sustainable aquaculture production, the importance of bio-security is continues to grow. Physical bio-security measures prevent the entry of pathogens and wild fish into culture systems. Biological bio-security measures enhance immunity and reduce disease risks. Operational bio-security measures, such as feed management and hygiene protocols, maintain animal health. Aquaculture bio-security provides benefits including disease prevention, environmental protection and food safety.

Key words: Aquaculture, Bio-security, Disease prevention, Environmental protection, Nutritious food.

Abstract No: 65

Next-Gen Aquaculture: Transforming Fish Farming with Emerging Technologies

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ABSTRACT

The Internet of Things (IoT), Artificial Intelligence (AI), and Blockchain Technology are witnessing a swift transformation in the aquaculture sector and are providing avant-garde solutions to render efficiency, sustainability and disease control. The traditional aquaculture sector faces many problems such as the fluctuation of water quality which is unpredictable, disease outbreaks, and inadequate feeding practices, as well as traceability problems in the supply chains. The research done in this thesis was based on the use of smart sensors coupled with IoT that offer real-time monitoring and predicting of water quality indicators such as dissolved oxygen, pH, temperature, salinity, and ammonia; in addition, AI-powered predictive model was used to anticipate the spread of the disease and to optimize the feeding strategy. Besides, the control of biofloc compost and triploidy technology bio-development, are two innovative methods that bring about fish health improvement and production skyward while reducing the dependence of antibiotics and chemicals. The study also shows the role of blockchain technology in the creation of transparent and tamper-proof supply chains, thus ensuring traceability, biosecurity, and compliance with international standard specifications. The case studies from progressive aquaculture farms show that the implementation of these smart farming technologies has led to increased production, lower mortalities, and a reduction in the environmental impact. With the help of AI, new decisions can be strengthened, the internet of things can operate on its own, and the blockchain can be used for traceability in the aquaculture sector, which in turn, can help in the shift toward a more sustainable, resilient, and technology-driven future, in response to the rising seafood demand while we minimize environmental footprints. This study was a guide for the integration of these pioneering technologies into large aquaculture operations, with the focus on ensuring profitability and ecological responsibility.

Keywords: Smart Aquaculture, Internet of Things (IoT), Artificial Intelligence (AI), Blockchain Technology, Precision Aquaculture

Abstract No: 66

Sustainable Aquaculture: The Role of Synthetic Biology, Probiotics, and CRISPR

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ABSTRACT

The sustainable management of aquaculture is now more than ever in a critical situation due to the challenges, caused by diseases, feed inefficiency, and environmental degradation. This paper proposes a revolutionary way that is new and uses microbial engineering and synthetic biology to improve the management of aquaculture. The engineered probiotic consortia are under production to boost gut health, improve nutrient uptake and increase total immunity, through which the use of antibiotics and chemotherapeutics would vanish. Further, through the processes of synthetic biology that involve the design of microalgae to serve as bio factories, the beneficial products and by-products are produced, simultaneously acting as food supplements and water purifiers. On top of that, the study is also looking into the application of CRISPR technology as a mean to genetically modify fish in order to make them disease-resistant and thus decrease the mortality rates and increase productivity. The study has cases of the application of microbial-based water filtration systems to the water resources that have indicated the noted improvements in ammonia breakage, carbon sequestration, and pathogen control in a closed-loop aquaculture system leading to the creation of a more efficient closed-loop aquaculture system. The purpose of the present work is to develop a microbial ecology-synthetic biology-precision aquaculture model. The latter model will embrace a closed-loop strategy, be eco-friendly, and will result in the mitigation of waste, maximization of the feed conversion ratio, and the creation of a secure global seafood supply. This knowledge shift is very beneficial as it can change the conventional way of aquaculture into a bioengineered self-sustained ecosystem and thus give new sustainability standards for the industry.

Keywords: Sustainable Aquaculture, Microbial Engineering, Synthetic Biology in Aquaculture, Engineered Probiotics, Gut Microbiome in Fish

Abstract No: 67

Mitigating Industrial Water Pollution through EIA and Regulatory Strategies

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ABSTRACT

The function of environmental impact assessments, or EIAs, in controlling water quality, especially in industrial regions, is examined in this paper. Due to the introduction of pollutants such organic compounds, heavy metals, and microbiological pollutants, industrialization plays a major role in water contamination. This study evaluates the efficacy of current water quality management techniques and identifies important contaminants through methodical analysis. The results emphasize that in order to mitigate water contamination, strong regulatory frameworks, cutting-edge treatment technology, and community involvement are essential. Effective control of industrial pollution can be achieved by combining EIA with sustainable water management techniques. In order to guarantee the long-term sustainability of water supplies, which benefit both ecosystems and human populations, the study emphasizes the significance of taking pre-emptive steps.

Keywords: Environmental Impact Assessment, Water Quality Management, Industrial Pollution, Regulatory Frameworks, Sustainable Solutions.

Abstract No: 68

RECENT DEVELOPMENTS IN SUSTAINABLE AQUACULTURE PRACTICES

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ABSTRACT

The aquaculture industry is poised for a transformative shift, driven by cutting-edge technologies that prioritize sustainability, efficiency, and environmental stewardship. This paper provides an in-depth examination of the latest innovations in aquaculture technology, including recirculating aquaculture systems (RAS), aquaponics, and integrated multi-trophic aquaculture (IMTA) systems. We also explore the potential of artificial intelligence (AI), Internet of Things (IoT), and data analytics to optimize aquaculture operations and promote sustainable seafood production. Recent advancements in RAS technology have enabled the recirculation of water, reducing waste and improving water quality. Aquaponics and IMTA systems have improved water quality, reduced waste, and increased crop yields by integrating aquaculture with hydroponics and/or other aquatic species. AI, IoT, and data analytics have enabled real-time monitoring and management of aquaculture systems, allowing farmers to make informed decisions. Case studies of RAS-based salmon farming in Norway and aquaponics-based shrimp farming in Thailand demonstrate the effectiveness of these innovative technologies in promoting sustainable aquaculture practices. Our analysis highlights the potential of these technologies to transform the aquaculture industry, promoting sustainable seafood production, improving efficiency, and reducing environmental impacts. Overall, this paper provides a comprehensive overview of the latest innovations in aquaculture technology and their potential to promote sustainable seafood production. Our findings have important implications for the future of the aquaculture industry, and we recommend that policymakers, industry leaders, and researchers prioritize the adoption and development of these innovative technologies.

Key Words: Aquaculture technology**,** Sustainable seafood production**,** Recirculating aquaculture systems (RAS)**,** Aquaponics**,** Integrated multi-trophic aquaculture (IMTA)

Abstract No: 69

Heavy Metals and Pesticides contamination in aquaculture ponds of Godavari districts, Andhra Pradesh: Review

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Abstract

This study investigates the contamination of heavy metals and pesticides in the aquaculture ponds of the Godavari districts in Andhra Pradesh, India. Aquaculture, a key economic activity in these regions, faces growing concerns over the impact of environmental pollutants, particularly heavy metals and pesticides, on aquatic health, ecosystem balance, and food safety. This research examines the concentration of various heavy metals (such as lead, cadmium, arsenic, and mercury) and common pesticides (including organophosphates, carbamates, and pyrethroids) in water, sediment, and aquatic organisms from selected aquaculture ponds. The findings reveal alarming levels of contamination, with specific ponds exhibiting concentrations of heavy metals exceeding the permissible limits set by environmental standards. Similarly, pesticide residues were detected in varying levels, suggesting the widespread use of chemical treatments in surrounding agricultural areas that eventually leach into the ponds. The study also highlights the bioaccumulation of these pollutants in aquatic species, raising concerns regarding human consumption of contaminated fish and shrimp. The research underscores the need for effective monitoring, regulatory policies, and sustainable aquaculture practices to minimize the impact of chemical pollutants in the aquaculture industry. These measures are crucial to ensure the health of aquatic ecosystems, the safety of seafood products, and the overall sustainability of aquaculture practices in the Godavari districts.

Keywords: Aquaculture, Heavy metals, pesticides biomagnification, Godavari districts

Abstract No: 70

Sustainable Aquaculture: The Role of Probiotics and Biofloc Technology in Enhancing Health and Environmental Performance

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Abstract

The aquaculture industry faces significant challenges in maintaining health and environmental sustainability. Probiotics and biofloc technology have emerged as promising strategies to address these concerns. This review article provides a comprehensive overview of the current state of knowledge on the application of probiotics and biofloc technology in aquaculture. We discuss the mechanisms of action of probiotics in enhancing immune response, disease resistance, and nutrient utilization in aquatic animals. We also examine the principles and benefits of biofloc technology in maintaining water quality, reducing waste, and promoting sustainable aquaculture practices. The potential for integrating probiotics and biofloc technology to enhance health and environmental performance in aquaculture is also explored.

Keywords: Probiotics, Biofloc Technology, Aquatic Animal Health, Environmental Sustainability , Water Quality Management.

Abstract No: 71

Impact of Climate Change on Aquaculture Systems in Andhra Pradesh

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Abstract:

Aquaculture plays a crucial role in Andhra Pradesh's economy and the livelihoods of coastal communities, but climate change threatens its sustainability through rising temperatures, sea-level rise, salinity intrusion, extreme weather events, and water quality deterioration. This study evaluates the impact of climate change on aquaculture production in Andhra Pradesh by analyzing environmental data, farmers' perceptions, and production trends. The objectives include assessing water quality changes, understanding climate-related challenges faced by farmers, and exploring adaptation strategies. Data were collected from meteorological and fisheries departments, alongside field surveys and water quality analysis. Statistical correlation of climate variables with aquaculture yield and thematic analysis of adaptation strategies were conducted. The results indicate that rising water temperature and salinity have adversely affected shrimp growth and survival rates, while the increasing frequency of cyclones and heavy rainfall has led to infrastructure damage and stock loss. Farmers reported higher disease outbreaks due to fluctuating environmental conditions. However, adaptive measures such as improved water exchange systems, the introduction of climate-resilient species, and enhanced farm management practices have shown positive outcomes in mitigating these impacts. The study concludes that climate change poses a significant challenge to aquaculture in Andhra Pradesh, affecting production, profitability, and livelihoods. Sustainable aquaculture practices, policy interventions, and community-based adaptation strategies are essential to building resilience against climate change. Future research should focus on climate-smart aquaculture technologies, farmer training programs, and government initiatives to support adaptation. Effective implementation of these strategies will help safeguard aquaculture production and ensure long-term sustainability. Addressing these challenges proactively through scientific, technological, and policy-driven approaches is crucial for maintaining Andhra Pradesh's status as a leading aquaculture producer in India.

Keywords: Climate Change, Aquaculture, Andhra Pradesh, Salinity Intrusion, Extreme Weather Events, Sustainable Fisheries, Adaptation Strategies.

Abstract No: 72

WATER AND SOIL QUALITY PARAMETERS IN UPSTREAM AND DOWN STREAM OF GODAVARI RIVER NEAR PAPER MILL RAJAMAHENDRAVARAM.

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AKNU RAHAMAHENDRAVARAM.

Abstract

My study based on fish diversity,socio economic conditions of fishermen, water,soil quality parameters in Godavari river and how the parameters effect the fish varieties and quantity and quantity of fishes availability and nutritional values of fish are effected with these parameters how the pollution effluents effect the water quality parameters like PH, SALINITY, ALKALINITY, HARDNESS,CALCIUM, MEGNICIUM,DO,COD,BOD,AMMINIA, NITRATE,IRON, CHLORIDE, PHOSPHATE, NITRATE, H2S are included in water at different streams of river near papermill. How the soil is in different streams of this area how are THE TEMPERATURE ,PH,ORGANIC CARBON, PHOSPHATE,AND NITROGEN LEVELSin the soil of river in both dreams near papermill are the effluents mixing properly by unpolluted conditions or not were they influence the DO,BOD and other important soil, water nutrients in river water in premonsoon, monsoon, postmonsoonseasons,If the ph value is changing in different seasons it may effect the ratio and range of species available in rever it may effect the breeder fish varieties,If the season change how the temperature effect the fish span,milt,Do for breathing of fishes how the BOD effects the mortality rate of fishes .To test all these parameters I used chemicals ph papers, thermometer,cuso4,H2so4,charcoal,glass apparatus burette,puppet,conical flask measuring jars,stirrer,samples of soil,water at both levels, ammonium buffer,edta,venigar,bakingsoda,erichrome black solution, titrations are done funnel is used where ever necessary ,frequently distilled water is used for mixing,soil organic carbon measured very low to high.sodoumbicarbonate,ammoniummolibdinate,ascorbic acid antimony potassium nitrate used and standerdised the result of soil PHOSPHATE,aswel as soil NITROGEN.

KEY WORDS: Temperature,PH, Alkalinity, salinity,hardness, calcium, megnicium,DO,COD,BOD, Ammonia, Nitrate,Iron,ChlorinePhosphate,Nitrate,H2S,Soil organic carbon,soilPHOSPHATE,Nitrateetc

Abstract No: 73

ASSESSMENT OF DIFFERENT CONCENTRATIONS OF SYMBIOTIC MEDIA FOR THE PRODUCTION OF*MOINA*sp IN AQUACULTURE

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Abstract:

The aquaculture industry continuously seeks efficient and cost-effective methods for cultivating sustainable high quality live feed.*Moina*sp; a Cladocera zooplankton serves as an excellent live feeddue to its high nutritional value. The present investigation reveals the various concentrations of symbiotic media for the production of maximum yield and nutrient enrichment of *Moina* sp. The five different concentrations of symbioticmedia were tested in laboratory conditions with Group A - (10ml/L concentration), Group B - (20ml/L concentration),Group C -(30ml/L concentration),Group D -(40ml/L concentration) and Group E-(50ml/L concentration).The survival rate,growth performance,biomass and qualityof *Moina* sp was assessed across the all-groups on 8thday. The result indicates that Group E has significantly higher biomass and survival rate (3.385 indiv/L),offspring per parent (36 indiv/P),nutrient values - crude protein (60.29 ±2.8), crude lipid (18.32 ±1.0), carbohydrates (9.22 ±4.32), ash (8.22 ±1.0) than the other groups.Among five groups the Group E – 50ml/L was the best concentration for the production of *Moina* sp.The current research reveals the potential concentration of symbiotic media and importance of live feed production, paving the way for more sustainable aquaculture practices for mass culture of *Moina* spas live feed.

Key words: Moina sp, Symbiotic culture, Live feed and Zooplankton.

Abstract No: 74

Characterisation of Carapace Composition in Developing and Adult Ostracods (*Skogsbergia lerneri*) and its Potential for Biomaterials.

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Abstract:

The protective carapace of *Skogsbergia lerneri,* a marine ostracod, is scratch-resistant and transparent. The compositional and structural organisation of the carapace that underlies these properties is unknown. In this study, we aimed to quantify and determine the distribution of chemical elements and chitin within the carapace of adult ostracods, as well as at different stages of ostracod development, to gain insight into its composition. Elemental analyses included X-ray absorption near-edge structure, X-ray fluorescence and X-ray diffraction. Nonlinear microscopy and spectral imaging were performed to determine chitin distribution within the carapace. High levels of calcium (20.3%) and substantial levels of magnesium (1.89%) were identified throughout development. Amorphous calcium carbonate (ACC) was detected in carapaces of all developmental stages, with the polymorph, aragonite, identified in A-1 and adult carapaces. Novel chitin-derived second harmonic generation signals (430/5 nm) were detected. Quantification of relative chitin content within the developing and adult carapaces identified negligible differences in chitin content between developmental stages and adult carapaces, except for the lower chitin contribution in A-2 (66.8 ± 7.6%) compared to A-5 (85.5 ± 10%) ($p = 0.03$). Skogsbergia lerneri carapace calcium carbonate composition was distinct to other myodocopid ostracods. These calcium polymorphs and ACC are described in other biological transparent materials, and with the consistent chitin distribution throughout S. lerneri development, may imply a biological adaptation to preserve carapace physical properties. Realisation of S. lerneri carapace synthesis and structural organisation will enable exploitation to manufacture biomaterials and biomimetics with huge potential in industrial and military applications.

Key words: Ostracod, Skogsbergia lerneri, X-ray fluorescence, Energy-dispersive, X-ray spectroscopy, X-ray analysis near-edge structure, Nonlinear microscopy, Second harmonic generation andTwo-photon excited fluorescence.

Abstract No: 75

USAGE OF ANTIBIOTICS AND THEIR IMPACT ON AQUACULTURE SYSTEMS

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Abstract:

Aquaculture is the breeding, rearing, and harvesting of fish, shellfish, algae, and other organisms in all types of water environments.Today, aquatic animals are the main source of protein for billions of people worldwide, and demand is expected to increase becausehuman consumption of aquatic animal products is greater than ever before.Aquaculture expanded its area rapidly in large scales to feeding the growing global population and these consequences leads to outbreak of diseases.In present scenario aquaculture faces several challenges throughout the production and one of the biggest challenges was infection disease control caused by different types of microbial pathogens. Antibiotics usage in aquaculture involves the administration of antimicrobial substances to aquatic organisms for the purpose of preventing, controlling, or treating bacterial infections.Due to the indiscriminate use of antibiotics as therapeutic, prophylactic and metaphylactic agentsin fish farming, results mutations in bacterial DNA leads to establishment of bacteria resistant to those specific antibiotics. The common factors which influence resistance development are overuse of antibiotics and poor water quality management. This type of mutant gene flow travels through food chain and food web.Hence, the present research work focusses on understanding and minimize the effects of antibiotics on the health of Aquatic organisms and human beings for environmental safety and to maintain long time Aquaculture sustainability.

Keywords: Aquaculture, Antibiotics, sustainability and Aquatic animals.

Abstract No: 76

LIVE FISH FEED AND THEIR IMPORTANCE IN AQUACULTURE

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ABSTRACT

Live fish feed refers to small, living organisms that serve as food for fish and other aquatic animals in aquaculture. These feeds are essential for the early life stages of many fish species, ensuring proper growth, survival, and overall health. Unlike formulated feed, live feed is highly nutritious and stimulates natural feeding behaviors. Types of Live Fish Feed 1. Phytoplankton – Microscopic algae that serve as the base of the aquatic food chain. Common types include: *Chlorella spp.* and *Spirulina spp.* 2. Zooplankton – Small aquatic organisms consumed by fish larvae and juveniles. Examples include: *Rotifers (Brachionus spp.)* – A primary feed for marine fish larvae and *Copepods* – Rich in essential fatty acids. Artemia (Brine Shrimp) – One of the most widely used live feeds in aquaculture, known for its high nutritional value and ease of cultivation. Daphnia (Water Fleas) – Commonly used to feed small fish due to their high protein and lipid content. Tubifex Worms – A nutrient-dense live feed ideal for freshwater fish. Moina – A type of water flea, often used for feeding small fish and fry. Bloodworms – The larvae of midge flies, high in protein and widely accepted by many fish species. Importance of Live Fish Feed in Aquaculture Are High Nutritional Value – Live feeds are rich in proteins, lipids, and essential fatty acids (e.g., DHA, EPA), which are crucial for fish growth. Enhanced Growth and Survival Rates – Live feed supports the rapid growth of fish larvae, reducing mortality rates. Improved Digestion and Absorption – Due to their natural composition, live feeds are easily digested and absorbed by fish. Stimulates Natural Feeding Behavior – Fish larvae and juveniles recognize and consume live feed more readily than artificial diets. Ideal for Early Life Stages – Many fish species rely on live feed during their larval stages when they cannot digest artificial feed. Better Water Quality – Unlike some formulated feeds, live feed does not easily decompose in water, reducing pollution. Prevention of Malnutrition and Deformities – Live feed provides essential nutrients that prevent deformities and developmental issues in fish larvae.Live fish feed is an essential component of successful aquaculture. Its high nutritional content, digestibility, and ability to enhance survival rates make it a preferred choice, especially for fish larvae. While formulated feeds are widely used in modern aquaculture, live feeds remain crucial for ensuring optimal growth and health in many fish species.

Key Words: Live fish feed, Nutritious, Overall Health, Phytoplankton's, Zooplanktons.

Abstract No: 77

Proximate Composition and Nutritional profile Screening of *Moringa oleifera* Leaves.

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ABSTRACT

Mangroves are widely used for the extraction of natural compounds for the purpose to be used in traditional medicine and the pharmaceutical sector. In this study, *Avicennia marina* leaves were dried and extracted by ethanol, acetone and ethyl acetate. The antimicrobial activity of the three organic extracts was examined against different fish and human pathogens. The mangrove ethyl acetate extract (MEE) which gave the highest antimicrobial activity was further evaluated, as it exhibited a promising antioxidant activity determined by the DPPH test with IC50 of 50.3 mg/ml. Its total phenolic and flavonoid contents were determined to be 109 and 23 mg/g, respectively. In addition, MEE antibiofilm activity was assessed by total biomass quantification using microplate assay and observed under light microscope. MEE showed a highly promising antibiofilm activity, where it succeeded not only in preventing initial cell attachment and biofilm formation by the fish pathogen *Pseudomonas fluorescens*, but also in disrupting the preformed biofilm with IC50 of 42.0 and 45.8 mg/ml, respectively. Furthermore, its chemical composition was determined by GC–MS analysis demonstrating that its major constituents are alcohol, fatty acids and their derivatives. Overall, the current study confirms the promising antimicrobial, antioxidant activities of MEE and reports biofilm inhibition and eradication activities of A. marina ethyl acetate extract against *Pseudomonas fluorescens*.

Key words: Biofilim, Mangroves, antimicrobial activity and antioxidant activity.

Abstract No: 78

IMPORTANC OF PROBIOTICS IN AQUACULTURE

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ABSTRACT

Probiotics play a key role in improving water quality, enhancing fish and shrimp health, and boosting overall aquaculture productivity. They help maintain a balanced microbial environment in aquatic systems, prevent diseases, and improve digestion in farmed species.

Commonly Used Probiotic Bacteria in Aquaculture are as follows Lactobacillus spp. Enhances digestion, boosts immunity, and inhibits pathogens. Bacillus spp. Improves water quality by degrading organic waste produces antimicrobial compounds. Pseudomonas spp. Reduces harmful nitrogen compounds (e.g., ammonia), prevents biofilm formation. Vibrio alginolyticus (non-pathogenic strain) Competes with pathogenic Vibrio strains, enhances gut health. Saccharomyces cerevisiae (Yeast) Boosts immune response and provides essential nutrients. Nitrosomonas spp. & Nitrobacter spp. Converts toxic ammonia into less harmful compounds (nitrification process).

Benefits of Probiotics in Aquaculture Disease Prevention: Compete with harmful bacteria (e.g., Vibrio, Aeromonas) and reduce infections. Improved Digestion & Growth: Enhances gut microbiota, improving feed utilization. Better Water Quality: Helps break down organic waste, reducing ammonia and nitrite levels. Stress Reduction: Increases resistance to environmental stressors (e.g., temperature fluctuations, salinity changes). Higher Survival Rate: Promotes healthier fish and shrimp, reducing mortality.

Probiotics are applied in aquaculture in the following ways are in Feed: Mixed into fish or shrimp feed for gut health benefits. In Water (Bioaugmentation): Directly added to ponds or tanks to improve microbial balance and water quality. Co-culture Systems: Used in integrated aquaculture setups (e.g., biofloc, Recirculating Aquaculture Systems - RAS).

Keywords: Probiotics, Aquaculture-Fish, Prawns, Benefits, Feed.

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