



DEPARTMENT OF ANIMAL HEALTH AND MANAGEMENT
STUDENTS NEWS LETTER

Editor-in-chief
R. Anjali

Associate Editors
P. Rajasekar
R. Ishwarya

Editors
S. Jayanthi
R. Rekha
R. Ranjitha
G. Sagunthala

Technical & Editorial Assistance
P. Lalitha
S. Chinnaiah
S. Karthik
V. Vinotha
S. Muthulakshmi



"Anyone who has never made a mistake has never tired anything new"

Albert Einstein

IMMUNITY MECHANISMS IN CRUSTACEANS



Successful commercial aquaculture of crustacean species is dependent on satisfying their nutritional requirements and on producing quickly growing and healthy animals. Protein is the most critical ingredient in crustacean diets with regard to both the economic cost of diet production and growth response in culture. Crustaceans are reported to have higher protein requirements than finfish with levels from 60% of the diet for some post larvae, to about 30-50% of the diet for shrimps and lobsters. For future generations, and in response to the increasing global population, the reliance on crustacean shellfish as a source of animal protein is set to increase. Inevitably this will lead to an increase in demand from wild fishery stocks and expansion of aquaculture. As a result of high culture densities and increasing extension of aquaculture farms, the presence of diseases has also increased, inducing economic losses. Invertebrates, including crustaceans have lack adaptive immune systems; have developed defense systems that respond against antigens on the surface of potential pathogens.

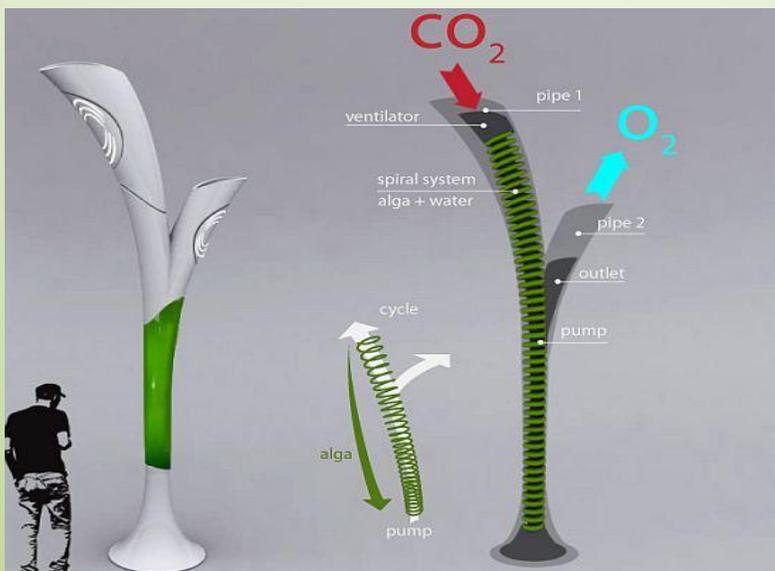
The defense mechanisms of crustaceans depend completely on the innate immune system that is activated when pathogen-associated molecular patterns are recognized by soluble or by cell surface host proteins, such as lectins, antimicrobial, clotting, and pattern recognition proteins, which, in turn, activate cellular or humoral effector mechanisms to destroy invading pathogens. This is undoubtedly an exciting time in the field of invertebrate immunology. New discoveries of PRPs, immune effectors and regulatory pathways are offering fundamental new insights in our efforts to understand disease in cultured populations and also to develop knowledge of environmental effects on host/pathogen interactions within a fishery context. The rate at which new discoveries are reported has increased in the past ten years and the number of research groups around the world with expertise in this field has increased dramatically. In part this underlines the significance of the crustacean industry in meeting the stress for sustainable global food security.

R.Ishwarya

Research scholar

BIO-LAMP

Bio-lamp is considered to be a better alternative for electric-lamps. It is a recent, newly blooming area of study that combines both the disciplines of biology and physics. Bioluminescent organisms (Algae, bacterial, fishes, terrestrial animals, etc.) are the “Raw material” for this ecofriendly bio-lamp construction. This need not require wirings, huge network or energy supply for the lamp to glow. As there is wireless surrounding is found, there will be no electro-magnetic waves will be produced that harming the environment. The advantages of this lamp production is that,



- ❖ The alga-built lamp can absorb high amount of carbon dioxide and produce oxygen which reduces pollution and contamination.
- ❖ Algae can also be used as biologic absorbent to remove heavy particulates, produce biofuel and bio-fertilizers after its life span is over.
- ❖ No E-Waste is produced like that of found in electric bulbs.
- ❖ Economically affordable and ecofriendly

Yazhini prabha .M

Research scholar

Effective utilization of community pond for finfish production using rain water

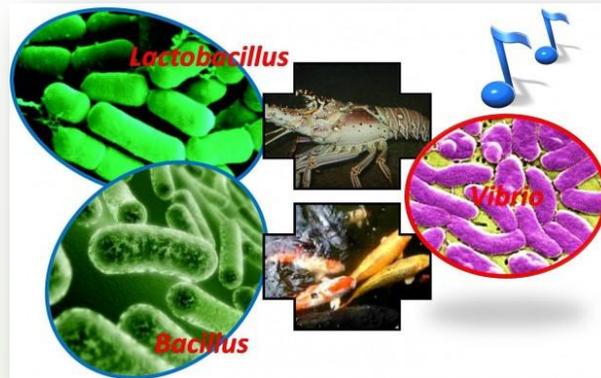


Aquaculture is one of the most gifted and fastest growing sectors contributing significant role in the Indian economy. It characterized by an enormous diversity of species raised both in natural and artificial systems. The production of freshwater fishes is dominated by the various species like major carps, tilapia and catfish etc. Generally, a density of 5,000 fingerlings is used as a standard stocking rate per hectare and expected target production was 3-5 t/ha/yr. The Stocking densities of 8,000-10,000 fingerlings/ha has been used for the production levels of 5-8 t/ha/yr. Higher targeted fish production levels of 10-15 t/ha/yr were achieved by resorting to stocking at a density of 15,000-25,000/ha. Tamilnadu is well-known for pond irrigation, each district and villages have more number of small ponds for this purpose. During rainy season the rain water was collected and stored in these ponds and used for partial irrigation, bathing and drinking. In Tamil Nadu, Chengalpatt Kanchipuram, Cuddalore, Sivaganga, Pudukottai, Ramanthapuram, Virudhunagar, Madurai, Tiruchirappalli and Dindigul districts are rich in community ponds. Among these districts Sivaganga have enormous resources for storing the rain water because each village has five to six ponds. These ponds can be effectively utilized for freshwater aquaculture production. Keeping the above facts in mind a fish culture study was conducted in a commercial and community pond (0.01 ha) located in the Kundrakudi area using rainwater for a period of five month. In this study India major carps, silver and common carps, genetically modified Tilapia and Sea bass fish fingerlings were stocked in the culture ponds during December month and observed the growth, survival and production. The highest survival was registered in all the species except sea bass. However among the introduced species the highest growth rate was recorded in Indian major carps (350g) and genetically modified (GM) tilapia (200g) than the other species. Thus the present study concludes that, Indian major carps and GM tilapia can be successfully produced in the community ponds using rain water. Therefore the local village peoples can effectively utilize the natural recourses for the betterment of life.

M. Manikandakrishnan

Research scholar

Growth performance, immune, antioxidant response of freshwater fish after dietary supplementation of the probiotic against the aquatic pathogens



Aquaculture is the leading sector for production of aqua foods. Its intensive rearing in aquaculture has generated a potential environmental stress to the animals, which leads to a high susceptibility of the fish to various disease agents, such as viruses, bacteria, fungi and parasites. Therefore, various infectious diseases erupt and lead to huge economic losses in aquaculture. One of the most common ways to prevent aquatic diseases is to administer antibiotics. However, recently, there are strict regulations on the use of antibiotics in aquaculture because of its seriously negative effects. Therefore, it is becoming increasingly important to use preventive approaches to control diseases through improved immunity, pathogen inhibition and so on. An alternative method to antibiotic treatment is the use of immunostimulants particularly for probiotics. Among the immunostimulants commonly used in aquaculture, probiotics have been reported to positively affect the innate immune response, improve antioxidant enzyme activity and disease resistance of aquatic animals. The non-specific immune systems or innate immune system are very important in the first line defense mechanisms of fish against pathogens and microorganisms. If the pathogen infects host organisms, it causes oxidative stress through the generation of free radical. To overcome the oxidative stress, the host produces the anti-oxidant enzymes for defense mechanism. The probiotics play a major role in defense mechanism by enhancing the antioxidant and innate immune response of fish.

N. Gobi
Research scholar

MEMORABLE ACHIEVEMENTS OF DEPARTMENT OF ANIMAL HEALTH AND MANAGEMENT

Department achievement**International workshop organized**

The International workshop on “**Molecular Physiology, Therapeutics and Experimental Medicine (MPTEM-2016)**” organized by the Department of Animal Health and Management, Alagappa University, Karaikudi during 6th – 7th September, 2016. **Prof. S.Subbiah**, Vice- Chancellor, Alagappa University, in his presidential address, exhorted the participants to know more about the modern medicinal therapeutics from this workshop. The inaugural address delivered by **Prof. P. Ramasamy**, Formely Vice-Chancellor of Alagappa University and Director Research, SBMCH, Chennai. He enlightened the several ongoing national and international research projects related with molecular biology and recent therapeutics.



Prof. B. Vaseeharan, Head, Department of Animal health and Management, Alagappa University, in his welcome address explained elaborately the role of medicinal remedies in molecular physiology and also enlightened the pharmacological and other molecular tools. **Prof. P. Manisankar**, Dean, Faculty of Science, Alagappa University, delivered key address; he elucidated the facts on management of molecular diseases.

Prof. Alexei Verkhratsky, School of Biological Sciences, University of Manchester, Faculty of Life Sciences, Manchester, UK, delivered a special lecture on Physiology and pathophysiology of astroglia with some emphasis on neurodegenerative diseases.

Science isn't about why.... It's about why not

Prof. Indu S. Ambudkar, Head, Secretary Physiology Section, Molecular Physiology and Therapeutics Branch, National Institute of Health, National Institute of Dental and Craniofacial Research, Bethesda, USA, delivered a special lecture in relation to Physiological functions and regulation of plasma membrane channels.

Prof. Shmuel Muallem, Head, Epithelial Signalling and Transport Section, Molecular Physiology and Therapeutics Branch NIH, National Institute of Dental and Craniofacial Research, Bethesda, USA, delivered a special address on the subject of Orail from microdomains to microbiome”.

Prof. Govindan Dayanithi, Head, Department of Molecular Neurophysiology, Institute of Experimental Medicine, EU Center of Excellence, Czech Academy of Sciences, Prague, Czech Republic, delivered a special lecture about Hypothalamo-Pituitary-Axis and the physiology of neurohypophysial hormones.

Prof. M. Balasubramanyam, Dean of Research Studies & Senior Scientist, Madras Diabetes Research Foundation, Chennai delivered a special lecture on Molecular Stress Wars (Signaling) in Diabetes: New Biology Insights.

Memorandum of Understanding (MOU) executed

At the end of the International Workshop, the memorandum of understanding has been initiated and agreed between the Alagappa University, Karaikudi whose address is Department of Animal Health and Management and University of Manchester, Manchester, United Kingdom. It was signed by Prof.S.Subbiah, Vice Chancellor, Alagappa University, Karaikudi with Prof. Alexei Verkhratsky, University of Manchester, Manchester, UK on 6th September 2016 with the effect for 5 Years.

The MOU has been signed by Prof.S.Subbiah, Vice Chancellor, Alagappa University, Karaikudi with Prof. Govindan Dayanithi, Head, Department of Molecular Neurophysiology, Institute of Experimental Medicine, EU Center of Excellence, Czech Academy of Sciences, Prague, Czech Republic, on 6th September 2016 with the effect for 5 Years.

The MOU has been signed by Prof.S.Subbiah, Vice Chancellor, Alagappa University, Karaikudi with Prof. Indu S. Ambudkar, Head, Secretary Physiology Section, Molecular Physiology and Therapeutics Branch, National Institute of Health, National Institute of Dental and Craniofacial Research, Bethesda, USA on 6th September 2016 with the effect for 5 Years.

World Animal Day celebrations

The Department of Animal Health and Management of Alagappa University celebrated the global event, World Animal Day on 4th October 2016, Tuesday at 10.30 am in the Conference hall, Science campus. It was inaugurated by Dr.V.Balachandran, Registrar i/c of Alagappa University and he pointed that how to treat and protect the animals and the welcome speech delivered by Dr.B.Vaseeharan Professor and Head, Department of Animal Health and Management. He conversed be thankful to the animal life in all its different forms, to value and preserve humankind's relationship with the animal kingdom. The special address conveyed from Dr.G.Archunan, Professor and Head, Department of Animal Science, Bharthidasan University and he delivered how animals helped to preserve ecological balance and improve the animal welfare.

The thematic address by Dr.T.R.Gurumoorthy, Dean of Research, Alagappa University delivered a talk on this occasion about how to respect and love the animals and improved standards animal welfare throughout the world. It is very useful to increase the awareness and it will lead the way to improve the standards of animal welfare throughout the world. The celebration ended with the vote of thanks given by Dr.P.Kumar, Assistant Professor, Department of Animal Health and Management.

Department Day Celebrations



The Department of Animal Health and Management was celebrated the Department Day on 23rd August 2016 at 6th Floor, Seminar Hall, Science Campus, Alagappa University. The celebrations embraced with educational and cultural events by students in the Department. All the faculty members motivated to students that the institute not only provides the technical knowledge but also builds in the students a scientific mind and improve their research skill.

“The science of today is technology of tomorrow”

Teacher's Day Celebrations

On the day of 6th September 2016, a department level celebration was organized by the students of Animal Health and Management on the occasion of Teacher's Day. All students participated in this celebration. All the faculty members were thanked to all the students and enlightened with the meaning of teacher's day. All faculty members also presented their views to the students and motivated them to perform well in all aspect of life. The function was taken to completion with refreshment.

Achievements by Faculty

Dr.B. Dr.B.Vaseeharan Professor and Head, Department of Animal Health and Management, delivered an invited talk on discoveries on immune related genes in Invertebrates organized by Department of Zoology, Scott Christian College, Nagercoil on 22nd July 2016.

Dr.B.Vaseeharan Professor and Head, Department of Animal Health and Management, attended the International Conference on Recent Advances in modern medicine: Molecular signaling scenarios in tissues and Diseases on 3rd and 4th September 2016 organized by Research Department Wing, Sree Balaji Medical College and Hospital, Bharath University, (BIHER), Chennai.

Dr.P.Kumar, Assistant Professor, Department of Animal Health and Management, has been awarded the Startup research Grant from under the scheme UGC, New Delhi, for newly joined faculty on August 2016.

Dr.N.M.Prabhu and P.Kumar, Assistant Professor, Department of Animal Health and Management, attended a National seminar on Recent Trends in Nanotechnology and Aquaculture Technologies (RTNAT-2016) @ Sri Venkateshwara University, Tirupati during 18th – 19th August, 2016.

Achievements by Students

The Research Scholars attended and presented the papers in National seminar on Recent Trends in Nanotechnology and Aquaculture Technologies (RTNAT-2016) @ Sri Venkateshwara University, Tirupati during 18th – 19th August, 2016.



Coordinators

Dr.M. Biruntha

Dr.V.Nithya