



CIBA NEWS

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RESEARCH HIGHLIGHTS

IMMUNOSTIMULATION IN PENAEID SHRIMP

Penaeid shrimps are endowed with a hard exoskeleton or cuticle which forms a structural and chemical barrier for invading pathogens. Like other crustaceans (invertebrates) they exhibit primitive immunity as they depend on non-specific defence mechanisms viz., phagocytosis and cell enzyme interactions. Lectins, agglutinins, melanins and pro-phenol oxidase play an important role in the crustacean defence and immune systems.

A variety of cell wall components of fungal and bacterial origin can trigger non-specific immune responses in crustaceans. Peptidoglycons, β -glucans and lipopolysaccharides (LPS) were successfully used to initiate a series of non-specific defence responses. Gram-negative and gram-positive bacteria can also be used to activate the pro-phenoloxidase (proPO) system in crustaceans. Hence immunostimulation may be used to activate the proPO system in penaeid shrimps and crayfishes.



Dr. G. R. M. Rao, Director, CIBA (right), chairing the half yearly SRC meeting held on 30.3.99. Dr. R. A. Selvakumar, Assistant Director General (M.Fy), ICAR (left), participated in the discussions.

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Shri S. SRINIVASAGAM &
Dr. (Smt.) MUNAWAR SULTANA,
Senior Scientists

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Immunostimulation experiments conducted at CIBA have indicated similar responses in larvae and juveniles of penaeid shrimps, namely, tiger shrimp (*Penaeus monodon*) and Indian white shrimp (*P. indicus*). Bacterial suspension of heat-inactivated bacteria viz., *Vibrio anguillarum* and *Aeromonas hydrophila* have been used to study the protective responses of shrimp. Stimulation was carried out by giving the experimental animals a bath in the bacterial suspension, containing 10^6 to 10^7 bacterial cells per ml. The treatment lasted for one hour. The treated larvae/juveniles were washed and shifted to holding tanks for growth and challenge studies. Though there was an enhancement in the protective response of the stimulated larvae / juveniles, the response could not be sustained for a period longer than 20 days. However, the treated shrimps showed strikingly better growth response than the untreated.

Experiments on the efficacy of immunostimulation were also conducted to ascertain the "booster" effect of the treatment. The shrimps with repeated treatments showed no enhancement in the protective response, probably due to the lack of memory component. The field trials for immunostimulation and their economics will be worked out based on the laboratory trials. These experiments were conducted by Dr. I.S. Azad and Shri Akshaya Panigrahi, Scientists.

DEVELOPMENT OF ARTIFICIAL FEEDS FOR SEABASS FINGERLINGS

Seabass *Lates calcarifer* fingerlings were successfully weaned to an artificial feed formulated with indigenous ingredients viz., fish meal, soybean meal, squid meat, wheat flour and wheat bran (crude protein level at 35%). Short-term feeding trials (40 days) with fish using two forms of this feed viz., wet dough and dry pellet,



Shri S. Srinivasagam, Senior Scientist, explaining about mud crab fattening to the participants of the training programme on mud crab breeding and culture, at Muttukadu Experimental Station.

indicated that a wet dough was more readily acceptable than dry pelleted feed.

VISITORS

The following visited the Headquarters and Muttukadu Experimental Station:

- Dr. Bjarne Ugerve, AKVAFORSK, Norway, on 23 April 1999.
- Mr. Denis Gasnier, a French Expert, on 31 May 1999, in connection with the Indo-French project on seabass culture.

ENGAGEMENTS

Dr. G. R. M. Rao, Director, attended the following meetings / seminars / workshop:

- Scientific Advisory Panel (SAP) Meeting of NATP at CRIDA, Hyderabad, 5-6 April 1999.
- Meeting of the Core Implementation Team of Institution Village Linkage Programme (IVLP), at CIFA, Bhubaneswar, 17- 20 April 1999.
- Review Meeting of Implementation of Research Programmes under



CIBA Scientists explaining to the participants of the training programme on crab breeding and culture while visiting a crab farmer's pond at Pulicat, near Chennai.

Production System Research, NATP, at Hyderabad, 25-26 April 1999.

- Meeting of Prioritisation of Research Areas for funding under AP Cess Fund of ICAR, at CICFRI, Barrackpore, 30 April - 1 May 1999.
- FAO-NACA Joint Programme Meeting at ICAR, New Delhi, 2-3 May 1999.
- Discussions with the National Director, NATP, on the various projects being taken up by the Institute under Coastal Agro-Ecosystem and the Meeting held with Senior Management officials of the World Bank, at New Delhi, 18-19 May 1999.
- 12th Meeting of the Aquaculture Authority, held at State Fisheries Dept., Chennai, 18 May 1999.
- Meeting in connection with the World Bank -assisted Shrimp and Fish Culture Project to discuss alternate cropping patterns in disease affected shrimp ponds, at CIBA headquarters, Chennai, 17 May 1999.
- NATP Meeting at National Research Centre on Oil Palm, Pedavegi (Andhra Pradesh), 4-5 June 1999.

The Scientists attended the following meetings/seminars/ workshops

- Dr. S. M. Pillai and Dr. K. O. Joseph, Senior Scientists and Dr. K. K. Vijayan, Scientist (Senior Scale) participated in the National Symposium on Sustainable Development of Fisheries towards 2020 AD - Opportunities and Challenges, held at the School of Industrial Fisheries, Cochin University of Science and Technology, Cochin, 21-23 April 1999.
- Dr. L. H. Rao, Head, Crustacean Culture Division, Dr. Mathew Abraham, Head, Fish Culture Division, Dr. S. A. Ali, Principal Scientist, Dr. P. Ravichandran, Shri M. Kathirvel, Dr. T. C. Santiago and



Smt. P. Victoria Khan, Orissa State Fisheries Dept. official (second from left) receiving the Course Completion Certificate from Dr. G. R. M. Rao. Director, CIBA (extreme right), at the Valedictory function held at CIBA Headquarters, Chennai, on 26.6.99. Shri S. Srinivasagam, (extreme left) and Dr. M. Krishnan (second from right) look on.

Dr. B. P. Gupta, Senior Scientists, attended the meeting in connection with the World Bank assisted Shrimp and Fish Culture Project, held at CIBA headquarters, Chennai, 17 May 1999.

Research (ACIAR) and National Science and Technology Development Agency, Thailand, (during 10-13 February, 1999), at Muttukadu Experimental Station, 9 April 1999.

MEETINGS

- Half-yearly Staff Research Council Meeting for the year 1998-99, was held at CIBA headquarters, Chennai, on 30 March 1999.
- The NATP - TAR (IVLP) Meeting was organised by the Institute at CIBA Headquarters, Chennai, on 24th June 1999. Dr. P. Das, Deputy Director General (Agri. Extn.), ICAR, chaired the meeting.
- The annual SRC Meeting of the Institute was held on 29 June 1999, at Muttukadu Experimental Station.

SEMINAR/ TALK

- Dr. Azad Ismail Saheb, Scientist, gave a seminar on "Molecular diagnostics of shrimp viruses" based on his foreign visit to Bangkok, Thailand, to attend the workshop on "Molecular Diagnostics of shrimp viruses in the Asian Region" organised by the Australian Centre for International Agricultural

AWARD

Smt. M. Jayanthi, Scientist, was awarded the Best Research Paper award for her paper entitled "Remote Sensing and Geographic Information System for Sustainable Aquaculture" presented at the Aquaculture Production Technology Session of the National Seminar on the Development and Transfer of Fisheries Technology, held at Fisheries College and Research Institute, Tuticorin, during 3-5 February 1999.

TRAINING

- A training programme on "Crab breeding and culture" was conducted by CIBA, during 21-26 June 1999, at CIBA, Chennai/ Muttukadu. The five participants were Shri N. C. Pradeep, Field Supervisor, MPEDA Regional Centre, Kochi (Kerala), Shri D. B. Yadav, Field Supervisor, MPEDA Regional Centre, Alibag



The newly constructed Type IV Staff quarters, at Kakdwip Research Centre of CIBA, Kakdwip, West Bengal.

(Maharashtra), Smt. P. V. Khan, Senior Laboratory Assistant, from Dept. of Fisheries, Govt. of Orissa, Shri. Suryakant Patil, Scientist, from CIFE, Mumbai and Shri Abdul Kadir, a private shrimp farmer from Kalpakkam near Chennai.

Lectures and demonstrations were arranged for:

- 10 students (B.F.Sc) from Fisheries College, G.B.Pant University, Lucknow, 8 April 1999.
- 9 students (M.Sc) from Central Marine Fisheries Research Institute, Kochi, 19 April 1999.



Dr. K. K. Krishnani, Scientist (SS), explaining the importance of environmental monitoring in brackishwater aquaculture to the students of a Higher Secondary School, Chennai, during the lecture class held at Muttukadu Experimental Station.

- 8 Inspectors of Fisheries from Staff Training Institute, Tamil Nadu State Fisheries Dept., Chennai, 15 May 1999.
- A batch of 34 students from Balalok Higher Secondary School, Chennai, 23 June 1999.

STAFF NEWS

Appointment

Shri Bholalal Dhanuk, as SS Grade-I, at Kakdwip, 15 April 1999.

Promotion

- Miss S. Nalini, Jr. Stenographer to

Stenographer Gr.II, at Chennai, 3 June 1999.

- Shri K. K. Raman, SSG III to SSG IV, 29 April 1999.
- Shri N. K. Shanmugam, SSG II to SSG III, 29 April 1999.
- Shri Baman Jally, SSG II to SSG III, 29 April 1999.
- Shri P. Arumugam, SSG II to SSG III, 29 April 1999.
- Shri P. C. Saha, SSG I to SSG II, 29 April 1999.
- Shri M. Santhosam, SSG I to SSG II, 29 April 1999.
- Shri Moraga Majhi, SSG I to SSG II, 29 April 1999.
- Shri N. N. Jana, SSG I to SSG II, 29 April 1999.
- Shri N. Harinathan, SSG I to SSG II, 29 April 1999.

Transfer

- Dr. S. S. Mishra, Scientist (S.S), CIBA, Chennai to Kakdwip Research Centre of CIBA, Kakdwip, 15 May 1999.
- Dr (Smt.) Imelda Joseph, Scientist, CIBA, Chennai to Narakkal Research Centre of CIBA, Narakkal, 29 May 1999.

Inter-Institutional Transfer

- Shri M. Shenbagakumar, T-5, from IASRI, New Delhi to CIBA Chennai, 24 May 1999.
- Dr. L. Krishnan, Senior Scientist, from Narakkal Research Centre of CIBA, Narakkal to CMFRI, Kochi, 29 April 1999.
- Shri Pramod Singh, Scientist, from CIBA, Chennai to EPC-NRC on Equines, Bikaner, 14 May 1999.

Retirement

- Shri D.Narayanaswamy, Senior Scientist, CIBA, Chennai, 30 April 1999.

