

Aquaculture Summit 2018- Importance of molecular endocrinological studies in optimization of aquaculture: An overview with finfish and shellfish models

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Optimization of aquaculture would require in-depth understanding of metabolism of the candidate species, especially with respect to that of growth and reproduction, the two major high energy demanding processes. In fishes, growth hormone and insulin like growth factors are known to play major role in development and metabolism, studies have allowed discernment of a complex, tissue-specific collection of IGF-I transcripts, through alternative splicing. Recent studies have enabled us to formulate synthetic hormones that could shorten the growth time needed for farm-raised fish to reach market size. Interestingly in crustaceans (crabs, shrimps etc.), regulatory mechanisms rely on the intricate balancing between stimulatory and inhibitory principles. Here, the ecdysteroids, secreted by the Y-organ and the terpenoid methyl farnesoate, secreted by the mandibular organ act as stimulatory hormones for growth and reproduction, respectively. Further, the neuro-secretory cells from the decapod eyestalks are known to produce molecules that could inhibit growth and/or reproduction. Information gathered on the inhibitory hormones from the eyestalk has paved the way for using de-eyestalking as a potential tool for induced breeding in female shrimps and lobsters. However, recent observations reveal that in spite of its efficacy in artificially induced egg maturation in female crabs and shrimps for one cycle, de-eyestalking is no more considered as a technique of consistency for induced breeding. Results of recent investigations on hormone receptors provide us with valuable clues on viable possibilities for inducing growth and reproduction and optimization of aquaculture, to be discussed during the proposed talk.

Biography

G Anilkumar is a Senior Professor in the School of Biosciences and Technology, VIT University, India. He is an expert in the field of crustacean endocrinology. He completed his Ph.D. in the field of invertebrate endocrinology from Calicut University, Kerala and got his post-doctoral training at the University of Oklahoma, USA as DBT Overseas fellow. He was nominated as the Scientific Adviser by the International Foundation for Science (IFS, Stockholm) and elected Fellow of the Royal Society of Biology, London. He was the recipient of the DBT Overseas Associateship to pursue research at the University of Oklahoma. Awarded research grant two times from the International Foundation for Science (Stockholm, Sweden), he is currently the scientific advisor to IFS. Dr. Gopinathan had also been Visiting Scientist to the University of Gdansk (Poland) and International Sakharov Environmental University (Minsk, Belarus) and has also visited and pursued collaborative research at the University of Oklahoma (under Indo-US DST-

NSF program). He has successfully guided many doctoral students during his research career and has also been awarded three prestigious best teacher awards at both university and state level. He has authored numerous research papers, obtained trainings from prestigious institutions of the world, chaired sessions of various international conferences and carried out collaborative research work with various scientists both at the national and international level.

Research Interest

Crustacean Endocrinology, Cell Biology, Aquacultural Biotechnology, Invertebrate Reproduction