proteins of *Caranx melampygus* were same on initial day and final day of storage.

FF PO 16

Isolation and characterization of lectins in *Etroplus suratensis* and their role in antimicrobial defense

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In Kerala aquaculture industry, production of *Etroplus suratensis* (pearl spot) is rapidly heading to heights. However, this rapid increase in production has highlighted bottlenecks in several aspects of their rearing, including knowledge of their susceptibility to infection. Tail fin rot disease is of utmost concern as this fish species is of high economic value. Indeed, currently little is known about the immune system and immune response in this species which severely limits approaches for disease control, should widespread disease outbreaks arise. Therefore, this study aims to characterize the immune response in the *E. suratensis*, with an emphasis on lectins in innate immunity, following stimulation with bacterial infection. No immune genes have been sequenced in pearl spot and hence identification of immune related genes and their expression studies are of importance to know the functions of lectins at cellular and molecular levels. Mannose binding lectin (MBL) was isolated and characterized for their biochemical and antimicrobial properties from *E. suratensis*. Various tissue extracts of *E. suratensis* were prepared and preliminary screening by haemagglutination assay was carried out for the presence of lectins. The proteins were precipitated out, purified by affinity chromatography and molecular mass was determined by SDS-PAGE. The biochemical characterization was done by sugar binding assay and by checking their activities at various temperatures, pH and requirement of divalent cations. Antimicrobial activity against different pathogens was also examined. These preliminary studies will pave way for future experiments of expression analysis of key immune molecules as well as for study of immune responses to pathogen infections.

FF PO 17

Isolation and characterization of carotenoid producing bacteria from gut of Indian oil sardine *Sardinella longiceps* (Valenciennes, 1847)

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In the present study, screening of bacteria from gut of Indian oil sardine *Sardinella longiceps* (Valenciennes, 1847) collected from Kanyakumari coast (N- 08°05'48"; E- 77°33'47"), Tamil Nadu, India, has led to the isolation of a yellow pigmented strain SR-G1. Cell morphology, motility and the occurrence of spores were examined by phase contrast microscopy. The isolate was Gram-positive, with irregular rods, non-motile branched cocci with colonies on nutrient agar yellow, opaque, glistening, circular and low convex with entire margin. The pH of the medium and incubation temperature were found to be limiting factors in growth of the bacterial strain. The optimum temperature for growth was 28°C. Key biochemical reactions include positive for catalase and negative for oxidase. The strain

was H_2S-producing, starch and gelatin-hydrolyzing and alkali-tolerant. The isolate grew well in minimal media containing glucose, fructose and sucrose. The strain SR-G1 was identified as *Microbacterium esteraromaticum* (GenBank Accession No. JQ581525) based on the phenotypic characteristics and 16S rRNA sequence analysis. Extraction and separation of the bacterial carotenoid was carried out by a one step methanol of hexane extraction. The coloured supernatant in hexane solvent was analyzed by using UV- Visible Spectrophotometer from 350-550 nm range for detecting the λ_{max}. The bacterial pigment was identified using a combination of UV/visible spectral data and HPLC retention time as Neoxanthin (λ_{max} = 438±2nm). Neoxanthin is one of the major xanthophylls (oxygenated carotenoids) which are reported to be directly associated with reduction in the risk of cancers, cardiovascular disease, age-related macular degeneration, and cataract formation. Hence, the potential of microbial producers as an alternative to chemical synthesis of xanthophylls could be further examined.

FF PO 18

Effect of squalene supplementation on HMG CoA Reductase in rats fed high fat diet

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Squalene a 30-carbon hydrocarbon obtained from shark liver oil is an intermediate in the synthesis of all plant and animal sterols including steroid hormones, cholesterol, and vitamin D. Studies have revealed that intake of squalene rich foods affords a cardiovascular benefit and protects from vascular disease-related mortality. It is also known to lower plasma lipid fractions that may be responsible for this effect. In our study in albino rats, we aim to show molecular evidence of the effect of squalene on the proteins of lipid metabolism through proteomics approach. Five groups of rats designated as control/Group 1, fed diet with normal fat content; squalene-fed diet with normal fat content, Group 2; high fat (40%) diet-fed Group 3, high fat diet fed groups 4 & 5 supplemented with squalene at 0.025 and 0.05% of body weight respectively were taken for the study. After the experimental feeding period of 27 days, rats were sacrificed and serum and liver tissue were taken for analysis. The effect of squalene on the mRNA expression of HMG CoA Reductase, the rate limiting enzyme in cholesterol biosynthesis has been studied. Western blotting approach was also used to determine the level of the enzyme HMG CoA Reductase in liver of rats of all experimental groups. Biochemical analysis of lipid fractions show that feeding of squalene resulted in lowering of total cholesterol and LDL cholesterol, triglycerides, but increased the levels of HDL cholesterol in squalene supplemented high fat diet fed rats in groups 4 and 5. No significant changes were observed in the content of phospholipids across the groups. mRNA expression of HMG CoA Reductase was significantly enhanced in Group 5, the high fat diet fed group that was supplemented with higher level of squalene when compared to Control group and Group 4 the high fat diet fed group that was supplemented with lower level of squalene. Fish oil feeding has resulted in lowering of serum total and LDL cholesterol and triglycerides. At the same time hepatic expression of HMG CoA Reductase was