

(corresponds to  $10^6$  cfu mL<sup>-1</sup>) and was added to the freshly prepared plates in duplicate. The plates were incubated at 28<sup>o</sup>C for 48 h, Results obtained from haemolytic activity of crustacean haemolymph were compared with healthy human blood. A clear zone of haemolysis was observed for all the aquatic bacterial pathogens on both shrimp and crab blood agar plates, where no hemolysis was observed for human pathogens. In case of human blood agar, all the isolates produced clear zone of haemolysis. This result shows that specificity of host-pathogen relation towards the crustacean haemocytes and is most accurate method of haemolysis determination. In conclusion, haemolytic assay employing crustacean haemolymph can be used to evaluate the mechanism of host specificity for invasion by the aquatic pathogens.

#### AH PO 16

### Studies on *Photobacterium damsela* subsp. *damsela* infecting marine finfish

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Marine fish farming is a very important activity of Indian aquaculture industry. The main marine fish species intensively cultured are cobia (*Rachycentron canadum*), asian seabass (*Lates calcarifer*) and pompano (*Trachinotus auratus*) and several new marine fish species are being evaluated as potential candidates for aquaculture production. The intensive culture of these new fish species has favoured the appearance of several outbreaks with varied mortality rates. In recent years, *Photobacterium damsela* subsp. *damsela*

has been repeatedly isolated from epizootic outbreaks affecting several cultured fish species in different geographical regions. In addition, this bacterial pathogen has been reported to cause diseases in humans, and for this reason, it may be considered as an agent of zoonoses. The present study was aimed to characterize and identify *Photobacterium damsela* subsp. *damsela* present in diseased cobia collected from Gulf of Mannar region of India. *Photobacterium damsela* subsp. *damsela* was isolated from gills, kidney, liver and spleen by using the thiosulfate citrate bile salts sucrose agar supplemented with 1.5% NaCl medium. A total of 11 *Photobacterium damsela* subsp. *damsela* isolates were studied together with one reference strain. The biotyping and multiplex PCR analysis of ure C and 16S rRNA, 16S rDNA, Damselysin (dly) genes confirmed the phenotypic characterization of the isolates as *Photobacterium damsela* subsp. *damsela*. Experimental infection studies revealed *Photobacterium damsela* subsp. *damsela* was found in the internal organs of cobia and it showed pathogenicity to fish. The study reports the first time isolation of this bacterium from cultured cobia in Gulf of Mannar region, which warns us to pay more attention to fishery in this geographical area.

#### AH PO 17

### Characterization of *Vibrio mimicus* isolated from fish and aquatic environment

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*Vibrio mimicus*, a species closely related to *Vibrio cholerae*, is a type of

pathogenic bacteria that causes gastroenteritis in humans and has also been reported as a pathogen inhabiting aquatic environments. It has been isolated from freshwater, brackish water, estuaries, rivers, lakes in tropical and temperate regions. The present study reports isolation, characterization of *Vibrio mimicus* in samples collected from different landing centers, retail fish markets and aquaculture farms. A total of 42 samples which includes finfish, shellfish, mollusks, dry fish, soil sediment and farm water were screened for this bacterium. Presumptive colonies were confirmed as *Vibrio mimicus* based on colonial morphology on TCBS agar, Grams' reaction and other biochemical tests. Further it was confirmed with Polymerase Chain Reaction (PCR) specific for haemolysin gene (*vmh*). The study revealed prevalence of *Vibrio mimicus* in 4.7% aquaculture samples whereas water and sediment samples didn't harbour this bacterium. Out of 37 samples screened from retail market and landing centers 16% harboured *Vibrio mimicus*. *Vibrio mimicus* is disseminated in the aquatic environment through fish and may transfer to water birds that consume them. Thus fish are reservoirs of *Vibrio mimicus* and may play an important role in its global spread. Reports indicate gastrointestinal disorders caused by the contamination of raw and improper cooked *Vibrio mimicus* contaminated fish. This study asks for preventive measures to avoid health hazards caused by *Vibrio mimicus*.

AH PO 18

### Phenol oxidase producing bacteria from shrimp

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Phenol oxidases are the group of enzymes with multifunctional abilities. The presence of bacteria with the extracellular phenol oxidase production in the melanised appendages of *Litopenaeus vannamei* was studied. Market drawn samples of *Litopenaeus vannamei* with melanisation were checked for possible intervention of bacteria with phenol oxidase production. Positive and negative screening with tyrosine yielded four types of bacteria with maximum phenol oxidase production. The bacteria were purified and named as TMA7, TMA9, TMA10 and TMA12. The sequencing of 16S rRNA fragment of the isolates revealed that TMA7 as *Bacillus niabensis*, TMA9 as *Acinetobacter* spp., TMA10 as *Bacillus megaterium* and TMA 12 as *Providencia rustigans*. Tyrosinase positive cultures were inoculated in the liquid medium and incubated at 37<sup>o</sup>C for 72 h at 170 rpm. After three days, the crude supernatant samples served as a source of enzyme for tyrosinase activity. The tyrosinase activity analyzed with dynamic reader in the presence of L-DOPA, L tyrosine for Diphenolase and mono phenolase respectively. TMA12 has shown 3.36 units of enzyme production in 3 days. TMA 10 has shown 2.99 units of enzyme production in 3 days. This study asks for further investigations on role of tyrosinase producing bacteria in shrimp

AH PO 19

### Sea lice (Copepoda: Caligidae) infestation and histopathological changes in the brood stock of silver pompano (*Trachinotus blochii*) and control measures