

exhibited by *Bacillus subtilis* with *Acinetobacter* sp. where 24.5% of bacteria co-aggregated. Oil spreading and drop collapse assay confirmed the biosurfactant producing ability of isolates. All isolates showed surface hydrophobicity, but *Lactobacillus plantarum* showed maximum affinity toward xylene (75.14%) followed by *Lactobacillus casei* (73.82%). Among the quorum quenching bacteria tested for hemolytic activity, only two (*Bacillus thuringiensis*, *Bacillus cereus*) showed  $\beta$ -hemolysis. All bacteria were negative for *gelE*, *cob*, *ccf*, *cylIM*, *cylB*, *cylA* and *efaAfs*, except *Bacillus cereus*, *Bacillus thuringiensis* and *Bacillus subtilis* that were positive for *GeIE* and *cob*. Present study divulges that all quorum quenching bacteria tested have excellent probiotic potential and further studies need to be performed to confirm their potential health benefits and applications in aquaculture sector.

#### AH OR 26

##### Isolation of quorum quenching bacteria and their impact on virulence of *Vibrio harveyi*

P. SHAHEER, TOMS C. JOSEPH\*, V. MURUGADAS, K.V. LALITHA

ICAR- Central Institute of Fisheries Technology, Kochi, Kerala, India; \*tomsjoseph@gmail.com

**Q**uorum Sensing (QS) is a bacterial cell to cell communication mechanism, which is responsible for regulation of gene expression that mediates the production of virulence factors in a cell density-dependent manner. Inactivation of quorum sensing signal molecules of pathogenic bacteria like acylhomoserine lactones (AHLs) has been proposed as a novel biotherapeutic method to fight against bacterial diseases in aquaculture. In this study, potential quorum

quenching property of virulence factor production of shrimp pathogen *V. harveyi* by *Bacillus* spp. was determined. One hundred and twenty two isolates of *Bacillus* spp. isolated from aquaculture ponds and mangrove soil were screened for their ability to degrade synthetic AHLs; N-butyryl-dl-homoserine lactone (C4-HSL), N-hexanoyl-DL-homoserine lactone (C6-HSL), N-octanoyl-DL-homoserine lactone (C8-HSL), N-decanoyl-DL-homoserine lactone (C10-HSL) and N-dodecanoyl-DL-homoserine lactone (C12-HSL) using agar-plate well diffusion assays with reporter strain, *Chromobacterium violaceum* CV026. Based on the ability to degrade all the five synthetic AHLs tested, seventeen *Bacillus* spp. isolates were selected for further study. None these isolates showed direct inhibitory effect on the growth of *V. harveyi* when co-cultured. Quantification of AHLs degradation activity evaluated using microplate assay revealed that of the seventeen isolates tested, AHL degradation potential was highest in *B. subtilis* MFB 10, *B. lentus* MFB 2 and *B. firmus* MFB 7 and among these *B. subtilis* MFB 10 exhibited maximum activity (78%). In addition to the inhibition of hemolytic activity and biofilm formation in *V. harveyi*, supernatant of the *B. subtilis* MFB 10 suppressed the production of various virulence factors such as protease, lipase, phospholipase, caseinase, gelatinase and chitinase. Furthermore this isolate was able to survive at a wide range of temperatures, pH values, and NaCl levels. Thus the study suggests the potential of AHLs degrading bacteria as an alternative for antibiotics in aquaculture for controlling bacterial diseases.

#### AH OR 27

##### Microbial assessment of aquaculture probiotics sold in the Indian market