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## Zooplankton-bacterial interactions: A hindrance to aquatic health

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The present study has tried to claim the first approach towards zooplankton – bacterial interactions among different wetlands. The bacterial isolates which were obtained from copepods from the freshwater study sites showed higher Colony Forming Unit (CFU). The abundance of bacteria at freshwater study site in Panskura (FW-I) was 7.51 CFU/ml. In context of brackish water study site at New Digha (BW-II), Colony Forming Units (CFU) as well as isolates tended to diminish in number that is 3.56 CFU/ml. Such change in bacterial population with respect to different water bodies are supposed to have been determined by varying salt gradient, nutrient availability and some other physicochemical parameters of water. This study tries to unearth information on ecology and trophic relationships focusing on zooplankton-microbe's interactions with biotechnological approach like Vitek 2 characterization, FESEM visualization. A vast array of antibiotics based on their efficacies towards cell wall breakdown, DNA synthesis inhibition, and protein synthesis inhibition were considered and differential susceptibilities against wide spectra of antibiotics were observed. Among the total of fourteen antibiotics, Oxacillin and Tazobactam (penicillin group) showed resistivity to all the gram-negative isolates. Among cephalosporins group, especially Cefixime, Ceftrizoxime and Cefepime exhibited resistivity for *Enterobacter cloacae* complex, and *Aeromonashydrophila*. Several other bacterial isolates of *Pseudomonas* sp. displayed resistivity to all the cephalosporins and sulfamethoxazole with a high MIC value. Among Gram positive isolates *Staphylococcus epidermidis* and *Staphylococcus auricularis* exhibited resistance at low MIC value to penicillin group antibiotics (Benzylpenicillin and Oxacillin) in contrast to eight other groups of antibiotics, where Sulfamethoxazole, a miscellaneous antibiotic group showed resistance at a high MIC value. Other groups of antibiotics (Aminoglycosides, Fluoroquinolone, Macrolide, Lipopeptide, and Glycopeptide) have shown their sensitivities against these bacteria. So, the present study tries to unravel the mystery of the root causes of different human diseases (gastrointestinal, typhoid etc.) and also justify zooplankton-bacteria hitchhiking.

### Biography

Midya S has an expertise over microbial ecology, antibiotic analysis, zooplankton population dynamics which enabled him to publish a good number of articles in some reputed international journals. Recently, he has joined as an Assistant Professor in a prestigious college Raja N.L. Khan Women's College of West Bengal, India.

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