



Comparative Assessment on the Prevalence and Antibiotic Resistance of Bacteria Associated with Larvae, Post- Larvae and, Adult of *Macrobrachium rosenbergii*

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ABSTRACT

Culture-based fisheries of Giant Freshwater Prawn (GFP), *Macrobrachium rosenbergii* have been introduced in Sri Lankan reservoirs, making economically important component in the inland fishery. Hitherto, microbial studies associated with GFP in reservoirs have not been reported. Present study is of utmost importance since it is a novel study conducted in the Sri Lankan context to ascertain the total bacteria and total *Vibrio* associated with larvae, post larvae and adults of *M. rosenbergii* and investigate the antibiotic sensitivity of these associated bacteria. Five larvae and post larvae samples containing 30 individuals in each were collected from 10 different tanks in freshwater prawn breeding centre, Kahandamodara whilst the sample of adult *M. rosenbergii* were collected from five reservoirs; Ridiyagama, Bandagiriyaya, Urusita wewa, Handapanagala wewa and, Muthukandiya wewa. All the samples were homogenized separately. To determine the total bacteria count (TBC) and total vibrio count (TVC), samples were inoculated on Standard plate count agar plates and Thiosulfate Citrate Bile Sugar (TCBS) plates, respectively by spread plate method. TBC and TVC were expressed as Colony Forming Unit/mL (CFU/mL). Kirby-Bauer disk diffusion method was used to examine the antibiotic sensitivity of the bacteria associated with different life stages of *M. rosenbergii* against Ampicillin (10 μ g), Ciprofloxacin (30 μ g) and Tetracycline (30 μ g). Mean no of total bacteria count associated with larvae, post larvae and adult were $2.96 \pm 2.4 \times 10^8$ CFU/mL, $2.64 \pm 5.90 \times 10^{11}$ CFU/mL and, $1.05 \pm 2.30 \times 10^{11}$ CFU/mL, respectively. The mean no of total bacteria associated with post larvae and adult of *M. rosenbergii* were significantly higher ($p < 0.05$) than that of in the larvae. Mean no of total *Vibrio* count of post larvae ($3.62 \pm 2.00 \times 10^4$ CFU/mL) were significantly lower ($p < 0.05$) than that of larvae ($4.13 \pm 3.54 \times 10^6$ CFU/mL) and adult ($4.31 \pm 3.11 \times 10^6$ CFU/mL). Bacteria associated with all the stages of *M. rosenbergii* showed resistance to Ampicillin whilst they were sensitive to Ciprofloxacin and Tetracycline. Present study warrants comprehensive studies on antibiotic sensitivity of all larval stages (12) of *M. rosenbergii*.

Keywords: Antibiotics sensitivity, Giant Freshwater Prawn, Life Stages, Spread Plate method