

IMPACT OF COMMONLY USED EPIBIOTICS ON THE WATER QUALITY IN SHRIMP GROW OUT PONDS BORDERING THE DUTCH CANAL- MUNDEL LAGOON

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Use of epibiotics in shrimp culture, to control water quality, became popular with the necessity to reduce water exchange, as a precaution against disease out-breaks. Several different brands of epibiotics (bacterial cultures) have been introduced to Sri Lanka. However the effectiveness of these bacterial cultures have not been assessed and many farmers felt that these bacterial cultures were not effective. This study was conducted to investigate the effects of two commonly used probiotics on the water quality of shrimp growth ponds.

The study was carried out in 10 different sites in the Mundel – Dutch Canal area and the selected ponds were treated with two common bacterial cultures (BC1 and BC2) with a control provided with the same conditions. Water quality was monitored weekly and the results were analysed statistically to find any significant difference in the water quality. Bacterial cultures were applied weekly as instructed.

The results revealed a significant difference ($p>0.05$) between Bc2 and other 2 treatments with respect to Nitrite, Sulphide and ammonia. However, BC1 showed no significant water quality changes ($p<0.05$) with respect to Nitrite, and Ammonia levels between the treatment and control ponds. BC2 showed significant difference ($p>0.05$) in the Nitrite levels from the 1st week after treatment while BC2 also showed a significant difference in the sulphide levels after the 2nd week.

TABLE 1. Mean water quality observed in the study

Parameter	Control	BC1	BC2
Dissolved oxygen	4.925±0.874	4.575±0.913	4.665±0.767
Nitrate	0.110±0.036	0.112±0.030	0.109±0.031
Nitrite*	0.0.092±0.02	0.0.063±0.010	0.0.098±0.017
Ammonia *	0.054±0.009	0.030±0.006	0.053±0.008
Sulphide*	0.446±0.106	0.312±0.072	0.371±0.108
pH	8.29±0.317	8.28±0.245	8.27±0.264

* significantly different ($p>0.05$)

The study concludes that the epibiotics that were tested may not be effective in controlling the water quality parameters studied. Therefore it is necessary to further study the impacts of using bacterial cultures and their efficiency.

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