EFFECTS OF USING DRAINED WATER IN EFFLUENT CANAL FOR INTENSIVE BLACK TIGER SHRIMP (*Penaeus monodon* Fabricius) CULTURE

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ABSTRACT

This research was conducted in order to evaluate the efficiency of effluent treatment and the performance of shrimp culture in the ponds used direct seawater and reused shrimp farm effluent. The farm had 1.5 rai reservoir and the effluent was pumped and treated from the effluent canal with probiotics (EM: Effective microorganisms) prior to use in the grow-out pond (4 rai). Results showed that water qualities in the effluent canal varied in wide ranges. Salinity was about 9-28 ppt. Alkalinity was about 151-323 mg/l. DO was about 3-13.3 mg/l. pH was about 7-3-8.6. Dissolved organic nitrogen (DON), particulate organic nitrogen (PON) and total ammonia nitrogen (TAN) were about 0.36-7.19, 0.21-4.69 and 0.02-2.4 mg/l, in respectively. Particulate phosphorus (PP) and dissolved organic phosphorus (DOP) were about 0.001-1.26 and 0.003-0.23 mg/l. BOD was about 2.6-17.1 mg/l. Particulate organic carbon (POC) was about 1.4-21.9 mg/l. Chlorophyll a was about 8-383 µg/l. The amount of yellow and green colony *Vibrio spp.* were about 7.5-46.8x10² and 0-8-68.5x10² CFU/ml. The results on evaluation of water treatment and using of EM before reuse showed that TAN, DON and PON decreased during the treatment but in crease after the treatment. The concentrations of nitrite and nitrate decreased towards the end of treatment process. The concentrations of DOP decreased while PP increased with the value before and after treatment about 0.08-0.03 and 0.04 -0.09 mg/l, in respectively. In addition, the concentration of chlorophyll a and yellow colony *Vibrio spp.* were decreased while green colony *Vibrio spp.* was increased. Although the efficiency of effluent treatment system was not significantly different, shrimp culture performance of the pond using treated effluent was success at a comparable level with the pond using seawater. Thus, our study may indicate that if farmer could play much intension on effluent treatment prior to reuse and a good farm practice through out the culture period, it is possible to reuse the effluent from shrimp farm for the next shrimp production cycle.

Key words: effluent, water quality, *Penaeus monodon*