Effectiveness of Ultraviolet Filtration of Incoming Sea Water for Controlling *Vibrio* spp. in Shrimp Hatcheries in North Western Province

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Vibrio spp. are natural micro flora that presence in marine waters are one of the main factors which responsible for larval mortality of penaeid shrimp. To avoid bacteriological problems, shrimp hatcheries adopt extensive water treatments which include effective ultraviolet filtration. But there the effectiveness of UV filters is a considerable problem. Therefore effectiveness of UV filtration of incoming sea water for controlling the *Vibrio* spp. and the management procedures that can be implemented for improving the efficiency of UV filters were studied. Ten shrimp hatcheries out of forty seven hatcheries in north western province of the country were selected. Sea water samples were taken before and after the UV filtration and were subjected to the Total Vibrio Count (TVC) test. Thiosulfate Citrate Bile salt Sucrose (TCBS) agar was used as the culture medium and pH, salinity, Ammonium-N, Nitrate-N, Nitrite-N were checked. Questionnaire survey was also conducted for collecting information regarding water treatment systems, disinfection procedures and the factors affecting on the efficiency of UV filters. According to this study there is a significant difference by considering the TVC among hatcheries and between the TVC of sea water before and after UV filtering. It was observed that salinity and pH have no significant effect on the TVC. According to questionnaire survey, although each hatchery uses the UV bulb capacities which are relevant to the water flow rates by considering the water usage volume, the effectiveness of UV filtration is not in an efficient level when comparing the mean values of TVC of sea water before and after UV filtering. According to Chi square Goodness of fit test, availability of charcoal filters, maintaining the records of hours of UV filter operation, replacing UV bulbs after its life time and routine changing of filter media in sand, charcoal and cartridge filters have significant impact on the TVC of UV filtered water. Therefore productive maintaining of the filter system is very important for the effectiveness of UV filtration.

Keywords: Water quality, Shrimp disease, Bacteriological problems, Water treatments, UV filters