

Treatment of freshwater aquaculture effluent and the way forward

ABSTRACT

Freshwater aquaculture industry is among the global emerging industry. Water pollution associated with this emerging industry is becoming public concern due to water scarcity around the world. The major pollutants in the freshwater aquaculture effluent are ammoniacal nitrogen, phosphate, organic matter and suspended solid. In Asia, the freshwater aquaculture effluent is often discharged in un- or poorly-treated form and are known to cause eutrophication, oxygen depletion and siltation. Thus, the effluent needs to be properly treated prior to discharge. In this work, current available treatment technology and ideas on proper treatment of freshwater aquaculture effluent is explored. Conventional freshwater aquaculture effluent treatment system such as sedimentation pond, mechanical screener and trickling filter are commonly employed; however, they do have their disadvantages and often not affordable to small-scale farmer. Constructed wetland for wastewater treatment system can overcome this disadvantage as it requires a much lower start-up, operation and maintenance costs. Over the years, constructed wetland wastewater treatment system is known for its outstanding treatment efficiency. However, there is room for improvement by manipulating the media, plant and flow pattern, which foresee a way forward to lower cost, better aesthetic and greater efficiency, respectively.