

## Effectiveness of floating micro-bead bio-filter for ornamental fish in a re-circulating aquaculture system.

### ABSTRACT

Bio-filtration has been widely used in re-circulating aquaculture system to remove waste and to convert toxic ammonia and nitrite into safe end products ornamental fish and other aquatic organisms. However, the study of micro-bead usage as the filter medium has not yet been broadened and thoroughly developed. Therefore, the aim of this study is to construct a biological filter made from polyethylene micro-bead as the filter medium and to analyze its effectiveness in removing waste as well as in converting the toxic organic matter into stable substances. The bio-filter was constructed under a rotational molding process. The tubes, hoses, and piping were made from polyvinyl chloride (PVC) while the fasteners were made from stainless steel and other non-corrosive materials. The effectiveness of this bio-filter was measured by using biochemical oxygen demand (BOD) and total suspended solids (TSS) analysis. Results indicated that this bio-filter is efficient enough to remove suspended solids and BOD. Therefore, this floating micro-bead bio-filter can be used in aquaculture systems.

**Keyword:** Micro-bead bio-filter; ornamental fish; re-circulating aquaculture system; biochemical oxygen demand; total suspended solids.