Ammonia removal in a water recirculating system for tilapia using an aerobic three-phase fluidized-bed reactor [

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text (article)

Analítica

The main objective of this study was to evaluate the ammonia removal efficiency in the wastewater treatment system of an intensive tilapia laboratory production system with water recirculation. The system comprised of a conventional sedimentation basin and an aerobic three-phase fluidized-bed reactor with circulation, operated at hydraulic detention times of 176.4 and 11.9 minutes respectively. Granular activated carbon was used as carrier with apparent density of 1.64 g/cmp3(B and effective size of 0.34 mm; the carrier concentration into the reactor was maintained constant at 80 g/L. Mean removal efficiency of total ammonia nitrogen was 41.2%. The evaluated system is an effective option for water reuse in aquaculture recirculating systems. In spite of ammonium nitrogen concentration variability which average value was 0.136 mg/L, the reactor influent maintained water quality characteristics in stable conditions, with average concentrations of ammonia nitrogen of 0.079 mg/L and dissolved oxygen concentration of 6.70 mg/L, recommended for fish culture and within the permitted values by the Brazilian legislation (CONAMA Resolution No. 357 of march 5 of 2005) for the disposal of final effluent in receiving water bodies
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Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es