

Analisis efisiensi penyisihan total ammonia nitrogen (TAN) pada sistem budidaya ikan air tawar metode resirkulasi menggunakan teknologi cyclobio fluidized sand biofilter = Analysis of removal efficiency total ammonia nitrogen tan in recirculating aquaculture systems of freshwater fish using cyclobio fluidized sand biofilter technology / Afifah Luthfiya Hanum

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Abstrak

ABSTRAK

Budidaya perikanan metode resirkulasi Recirculating Aquaculture Systems, RAS mendapat perhatian lebih jika dibandingkan dengan budidaya perikanan metode konvensional khususnya pada budidaya ikan air tawar karena bersifat ramah lingkungan. Tujuan dari studi ini adalah untuk mengevaluasi penyisihan ammonia pada RAS dipengaruhi oleh beban organik berupa Total Ammonia Nitrogen TAN yang berbeda dalam 3 variasi Surface Loading Rate SLR sebesar 0,05; 0,075; dan 0,1 g/cm².hari dan mengetahui kinetika laju reaksi penyisihan ammonia didasarkan pada budidaya ikan Gurame *Ospheornomus gourami* Lac tahap pendederan. Pengolahan ammonia dilakukan dengan menggunakan biofilter tipe CycloBio Fluidized Sand Biofilter CB FSB dengan ukuran pasir efektif D10 of 0.6 mm yang tereksansi sebesar 60 pada kecepatan air 2,5 cm/l. CB FSB dapat menyisihkan 59,33 - 100 konsentrasi TAN. Penyisihan ammonia dalam biofilter sesuai dengan kinetika laju reaksi orde nol. Nilai konstanta orde nol pada penyisihan ammonia sebesar 0,415 g m⁻² hari⁻¹ . Hasil penelitian ini diharapkan dapat menjadi informasi untuk optimalisasi dalam pengolahan khususnya di kawasan budidaya air tawar.

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ABSTRAK

Recirculating Aquaculture System RAS has get more attention since it environmentally friendly compared with conventional aquaculture system particularly in freshwater aquaculture. The objective of this study to evaluate the removal of ammonia in RAS affected by different feed loading of Total Ammonia Nitrogen TAN based on the culture of Gourami *Ospheornomus gourami* Lac . Treatment of ammonia in laboratory scale CycloBio Fluidized Sand Biofilter CB FSB was evaluated using effective size D10 of 0.6 mm and was expanded approximately 60 at a superficial velocity of 2,5 cm s. The CB FSB removed 59,33 100 of TAN concentration and reached 100 when using high feed loading 0,6 and 0,8 mg L . The ammonia degradation within the biofilter system, obtained by the ammonia measurements of the biofilter has been fitted satisfactorily to 0 order kinetic expression in good agreement with the results found in literature for laboratory studies. Rate constants k 0 order 0,415 g m⁻² day⁻¹ has been obtained based ammonia in this study. Thus, this work reports the first time the kinetics of ammonia oxidation in CB FSB in laboratory scale of Recirculating Aquaculture System. These results will provide useful information for the design in order to optimize the water quality in this activity.