

## ABSTRACT

### APPLICATION OF NITRIFYING BACTERIA IN BIOFILTER FOR AMMONIA REDUCTION AND GROWTH PERFORMANCE OF GIANT GOURAMI FRY (*Osphronemus gouramy*)

By

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The consumption of giant gourami (*Osphronemus gouramy*) in Indonesia increased in 2007 up to 35,708 tonnes and in 2011 increased to 59,401 tonnes. Increasing the production of gourami can be done by improving water quality of culture media. Cultivation of gourami using a recirculation system and the addition of the biological filter using nitrifying bacteria is an effort to maintain water quality. The bacteria serve as decomposers of ammonia (NH<sub>3</sub>) generated from metabolic waste. The research design that has been done were using two treatments with three replications. The parameters observed in this study were growth, water quality (ammonia, nitrite, nitrate, temperature, pH, dissolved oxygen), survival rate, and FCR. The results showed that low concentration of ammonia in the treatment A was assumed because of the nitrifying process. The highest ammonia content in treatment B shown on the 20<sup>th</sup> day of observation that was equal to 2,978 mg/l. This value was higher (P = 0.009) than treatment A (1,529 mg/l). Nitrifying bacteria was not given in treatment B. Consequently, the nitrification in treatment B was slower. The addition of nitrifying bacteria, *Nitrosomonas* sp. and *Nitrobacter* sp. has proven the ability to reduce the concentration of ammonia in the culture media. The addition of nitrifying bacteria was also capable to improve water quality and increase the appetite of fish therefore accelerating growth and improving the survival rate of gourami.

**Keywords:** Gourami, nitrifying bacteria, water quality, ammonia, growth.