

Research Title:

Characterization and identification of probiotic bacteria from intestinal tract of tilapia (*Oreochromis* sp.) grown in cage culture

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ABSTRACT

The intestinal tract bacteria of tilapia (*Oreochromis* sp.) were isolated and identified. Total of 54 bacteria isolates were classified by morphology and biochemical test. They were *Bacillus* spp. and *Lactobacillus* spp. The bacterial isolates were evaluated for their probiotic properties including acidic and bile salt condition tolerance, digestibility of starch and protein, pathogenic bacteria inhibition and capability of antibiotic resistant for probiotic bacteria selection. The 16s rRNA gene of the probiotic bacteria were investigated for identity. The result showed that the isolate M104 (*Lactobacillus* sp.), T311 (*Bacillus cereus*) and T318 (*Bacillus subtilis* subsp. *Inaquosorum*) capable to tolerate the bile salt from 0.5 to 3% NaCl. Those strains had digestible property on starch and protein, and fish pathogen inhibitory, *Streptococcus* sp., *Aeromonas* sp. and *Pseudomonas* sp. Whilst, M104 was able to tolerate from pH 1 to 4, T311 and T318 were able to tolerate from pH 2 to 4. M104 also resisted to Gentamicin, Tetracycline, Chloramphenicol and Trimethoprim, while T311 and T318 resisted only 3 antibiotics. The isolate M104, T311 and T318, therefore may be used as probiotics in tilapia culture.

Keywords : Tilapia, Probiotic bacteria, *Bacillus* sp., *Lactobacillus* sp.