

Preecha Poompuenpon 2007: Isolation of Bacteriocin-Producing Lactic Acid Bacteria from Gastrointestinal Tract of Ornamental Fish. Master of Science (Fishery Products), Major Field: Fishery Products, Department of Fishery Products. Thesis Advisor: Assistant Professor Pongtep Wilaipun, Ph.D. 100 pages.

One hundred and two strains of lactic acid bacteria (LAB) were isolated from various kinds of ornamental fish gastrointestinal tract and only two LAB strains produced antimicrobial substance in MRS broth. Strain MGM30-8.22, isolated from goldfish (*Carassius auratus*, comet), with the highest antimicrobial activity against indicator bacteria was selected for further studies. According to API 20 Strep and homology of 16S rDNA base sequences results, strain MGM30-8.22 was identified to be *Enterococcus raffinosus*. The antimicrobial substance produced by *E. raffinosus* MGM30-8.22 exhibited a proteinaceous in nature, which is the most important property of bacteriocin. Moreover, *E. raffinosus* MGM30-8.22 produced heat and pH tolerant bacteriocin with bactericidal mode of action to *Enterococcus faecium* JCM 5804. Bacteriocin production of *E. raffinosus* MGM30-8.22 in MRS broth reached the maximum level at the end of log phase after 14 hr of incubation which indicated a primary metabolite production. Preliminary probiotic properties on toleration in fish gastrointestinal tract of *E. raffinosus* MGM30-8.22 were studied. It could grow at 1-7% (w/v) NaCl, 0.1-0.2% (w/v) ox-bile salt, 10-50% (v/v) fresh fish bile, anaerobic condition as well as survive or grow at pH 3 to 11 after incubation for 6 hr. Moreover, it resisted to nalidixic acid, oxolinic acid and sulphamethoxazole. Consequently, these indicated that *E. raffinosus* MGM30-8.22 had a potential for research and probiotic application in aquaculture or ornamental fish culture.

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