

Carbohydrates Quantification from Agro-Industrial Waste and Fermentation with Lactic Acid Bacteria

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Abstract : Present study was conducted to isolate lactic acid bacteria (LAB) from *Oreochromis niloticus* and *Nemipterus japonicus* fish gut. The LAB isolated were confirmed through 16s rRNA sequencing. It was observed that isolated *Lactococcus* spp. were able to tolerate NaCl and bile acid up to certain range. The isolated *Lactococcus* spp. were also able to survive in acidic and alkaline conditions. Further agro-industrial waste like peels of pineapple, orange, lemon, sugarcane, pomegranate; sweet lemon was analyzed for their polysaccharide contents and prebiotic properties. In the present study, orange peels, sweet lemon peels, and pineapple peels give maximum indigestible polysaccharide. To evaluate synbiotic effect combination of probiotic and prebiotic were analyzed under in vitro conditions. Isolates *Lactococcus garvieae* R3 and *Lactococcus* sp. R4 reported to have better fermentation efficiency with orange, sweet lemon and pineapple compare to lemon, sugarcane and pomegranate. The different agro-industrial waste evaluated in this research resulted in being a cheap and fermentable carbon source by LAB.

Keywords : agro-industrial waste, lactic acid bacteria, prebiotic, probiotic, synbiotic

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