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In-vitro probiotic properties of *Lactobacillus satsumensis* LC311746.1 isolated from water kefir grains

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Abstract

Lactobacillus satsumensis LC311746.1 was isolated from water kefir grains. Then, the bacterial isolate was tested for gastrointestinal conditions, hydrophobicity, aggregation ability, antibiotic resistance, antimicrobial properties, and cholesterol-lowering properties. The results showed that the bacterial isolate was resistant to acidic conditions even after 3 hours of exposure. Resistance to bile salt, pepsin, and pancreatin enzymes was also greater than 90% at the end of each experiment. The isolate had a relatively low hydrophobic capacity of up to 20%, but had a high autoaggregation capacity. On the other hand, the isolate had relatively low coaggregation ability with *Staphylococcus aureus*. In addition, the isolate was sensitive to more than two antibiotics, indicating that it was safe for human consumption. Also, *L. satsumensis* showed medium antimicrobial activities against pathogenic bacteria, e.g. *Campylobacter jejuni*, *Escherichia coli*, *Salmonella Enteritidis*, *Listeria monocytogenes* and *Salmonella Typhimurium*. The cholesterol reducing ability of the isolate was also detected. In conclusion, *L. satsumensis* LC311746.1 has promising probiotic properties that could be useful for the development of novel health-friendly food products.

Key Words: Water kefir grains, *Tibicos*, Probiotic, *Lactobacillus satsumensis*, Antimicrobial

