# Basic Characteristics of Sporolactobacillus inulinus BCRC 14647 for Potential Probiotic Properties

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## Abstract

The basic characteristics of the spore-forming lactic acid bacterium, Sporolactobacillus inulinus BCRC 14647, was evaluated in vitro for its potential probiotic properties. Assessments including acid and bile salt tolerance, adhesiveness, and antagonistic effects on pathogenic Salmonella enteritidis BCRC 10744, as well as inhibition factors of spent culture supernatant (SCS) and an invasion assay, were conducted using Lactobacillus acidophilus BCRC 10695 and two bifidobacteria (Bifidobacterium bifidum BCRC 14615 and B. longum BCRC 11847) as a reference. In the results, S. inulinus spores presented significantly higher survival rates than the vegetative cell form in acidic conditions as well as the reference bifidobacteria. However, L. acidophilus showed the highest viability among all tested strains. Similar results were found in the bile tolerance test. Compared with the reference strains, the vegetative cell form of S. inulinus possessed a proper adhesive characteristic (71.7 bacteria/field for S. inulinus and 91.3 and 45.7 bacteria/field for B. bifidum and B. longum, respectively). In the adhesion assay, both the spore form of S. inulinus (17.1 bacteria/field) and the negative control, L. bulgaricus BCRC 14009 (5.9 bacteria/field), displayed nonadhesive traits. The vegetative cells of S. inulinus and its SCS both dramatically decrease the adhesion of S. enteritidis to Caco-2 cells; meanwhile, the SCS of S. inulinus vegetative cells inhibited the growth of S. enteritidis in the inhibition zone test. The existing inhibition factor could be assumed to be lactic acid in the SCS. From the results of the invasion assay, S. inulinus showed high safety properties. In conclusion, based on these in vitro evaluations, results suggest that S. inulinus presents probiotic features of great potential in the vegetative cell form.