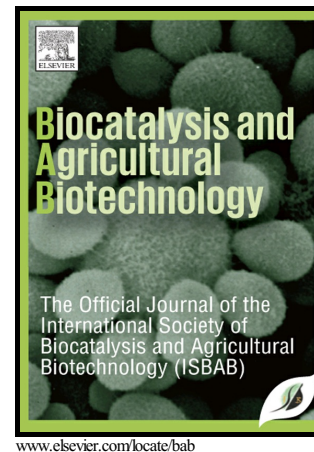


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Possible correlation among osmophilic bacteria, levan yield, and the probiotic activity of three bacterial honey isolates

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Abstract

Three bacterial strains were isolated from different honey sources. They were identified based on 16S rRNA as *Bacillus endophyticus* SH, *Bacillus subtilis* WA and *Bacillus subtilis* MO. All the isolates had ability to yield levan in the presence of 80 g sucrose with degree of variation. The osmotic tolerance capacity for the three honey isolates was examined on sucrose, NaCl, sea water, NaCl/ sucrose. The results categorized the isolates as moderate halophiles where they reported their maximum growth between (4-8%) NaCl or (20-50%) sea water, also their highest growth was obtained at 4% sucrose and they were tolerant to sucrose stress till 20%. The probiotic studies revealed that the vegetative cells of the three isolates were highly resistant to severe acidic and alkaline pHs and to different concentrations of bile salt and pancreatic enzymes with variant degrees. Isolates safety was proved by negative blood hemolysis, absence of hemolytic cytotoxin K (cytK) and non-hemolytic enterotoxin (nheA, nheB and nheC) genes. In addition, the isolates were sensitive to the tested antibiotics including streptomycin, ampicillin, novobiocin, nalidixic acid, vancomycin, kanamycin,

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