



# Molecular Typing and Probiotic Attributes of a New Strain of *Bacillus coagulans* – Unique IS-2: a Potential Biotherapeutic Agent

Sudha R, Chauhan P, Dixit K, Babu SM, Jamil K. Molecular typing and probiotic attributes of a new strain of *Bacillus coagulans* unique IS-2: a potential biotherapeutic agent. *Genetic Eng Biotechnol J*. 2010 Jan 1;7:1-20.

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## Summary:

The phenotypic and genotypic characterization of a probiotic lactic acid bacteria, *Bacillus coagulans* (IS-2 a Unique-Biotech strain) isolated from human feces was studied. In addition to morphological and biochemical characterization, of the isolate, molecular characterization was done. In vitro assays were performed to confirm the probiotic attributes of the isolate *B.coagulans*-Unique IS-2. The mole % G+C content of IS-2 strain was found to be 46 indicating the identity of the culture as *Bacillus coagulans*. PCR based amplification of the 16S rDNA, using universal primers, and sequencing was done to study the diversity, as it allows identification of prokaryotes as well as the phylogenetic placement of the isolates. 16S rDNA sequence data was used to identify the lab isolates followed by RAPD profile of the isolate- IS-2 of *B. coagulans*. The phylogenetic tree using Clustal W constructed by UPGMA based on the 16S rRNA gene sequence further confirmed that Unique Biotech strain IS-2 formed a coherent cluster with two other strains of *B. coagulans* namely *B. coagulans* ATCC 7050 and *Bacillus coagulans* NCIM 2030. Evaluation of its probiotic attributes revealed that *Bacillus coagulans* Unique IS-2 had promising probiotic properties with reference to its survival in gastrointestinal conditions in the in-vitro assays and therefore offers excellent opportunities for its successful commercialization as a bio-therapeutic agent.

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