

Study on the effect of intracellular loaded trehalose in cryotolerance and viability of *Lactobacillus bulgaricus*

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Demand for functional foods like probiotics is increasing day-by-day. *Lactobacillus bulgaricus* is one of the mostly used probiotic since olden days. To preserve viability of these cultures during long term storage one of the best method in use is cryopreservation. In the present study cryotolerance of *L.bulgaricus* was evaluated using liquid nitrogen (-196°C). Use of excipients is one of the main steps to prevent hurdles like intracellular and extracellular ice formation, membrane damage and protein denaturation during cryopreservation. Studies have proven that, disaccharides like trehalose acts as very

good excipient. Since edible, it is well preferred to be used in biostabilization of probiotics. In the present work, a comparative study of cryotolerance on bacteria loaded with and without trehalose was done. In the cryotolerance tests various concentrations of trehalose (100mM, 300mM and 500mM) were considered. Intracellular loading was performed using osmotic effect and chemical method followed by cold shock. Samples loaded with and without trehalose were exposed to liquid nitrogen for various time periods (5min, 20min, 30min and 60min). Freezing and thawing were done at both rapid and slow rates.

Biography

Mr. Yoganand K.N.R. has completed his Bachelor Degree in engineering from Dr.M.G.R. University, Chennai in the year 2009. At present he is a research scholar at National Institute of Technology, Rourkela pursuing his Master of Technology Degree. He is working on the Project "Biostabilization of Probiotics".