

## Microencapsulation of probiotic *Lactobacillus plantarum* and *Lactobacillus casei* with different Prebiotics by spray drying

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### Abstract

Microencapsulation of probiotic *Lactobacillus plantarum* and *Lactobacillus casei* with different Prebiotics by spray drying: Spray drying can be used to prepare many probiotic and functional foods like probiotic powder or some ready to eat packaged food. But The high temperature of spray drying kills a large number of probiotics during powder preparation, so we need to implicate some methods to improve survivability of probiotics. In present study we prepared a probiotic milk powder using three different types of prebiotics viz. FOS, GOS and Inulin to encapsulate the bacteria. Effect of these prebiotic on survivability of probiotic culture during drying was assayed. Addition of prebiotic fiber enhanced survivability of probiotic culture during spray drying. While without fiber there was upto 3 log reductions during spray drying but after addition of fiber there was 1 or 2 log reduction only. Survivability of culture was directly proportional to the amount of prebiotic fiber added. At 1% fiber there was up to 2 log reduction, while at 2.5% of prebiotic fibre there was 1.5 log reductions and at 5% PF there was only 1 log reduction. Survivability is significantly ( $p < 0.5$ ) different at different levels of fiber. However, the survivability was not affected by the type of prebiotic fiber i.e. FOS, GOS or inulin. The average size of the microcapsules after spray drying was 1-5micron meter. There were no cracks or visible fractures present on the surface of the microcapsule indicating the less fragility of wall system. Such surface is desirable as encapsulation wall as it helps to withstand the mechanical forces and higher pressure associated with expansion and ballooning during spray drying. Moreover it can reduce the air permeability that provides better protection of probiotic microorganisms

### Biography:

Prity Singh has completed my PhD from Banaras Hindu University, India at the age of 28 years. She has worked on development of probiotic milk powder and also worked on heavy metal analysis using AAS.