

## **ENCAPSULATION EFFICIENCY OF *Bifidobacterium lactis* BB-12 USING GUM ARABIC IN SPRAY DRYER**

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Probiotics are microorganisms known to provide a number of benefits to consumer health. However, for the beneficial health effects to be achieved, must remain viable probiotics in sufficient quantity in the food until the time of consumption, and must survive passage through the gastrointestinal tract. In order to maintain viability, microencapsulation methods have been applied. Among them, the spray drying technique is one of the most known and used by presenting some advantages, such as relatively low cost, ease of operation and application on an industrial scale. The efficiency of this process is an extremely important factor and consists of the parameters used in the spray dryer and the characteristics of the encapsulating agent and the active material. Gum arabic has shown an important role in microencapsulation by having desirable characteristics such as film formation, smooth taste, good solubility in water and surface-active properties. In this context, the aim of this study was to evaluate the efficiency of encapsulation of *Bifidobacterium lactis* BB-12 using gum arabic as encapsulating agent by spray drying method. For the encapsulation, a feed solution was prepared containing 1 g of *Bifidobacterium lactis* BB-12 which corresponded to a cell viability of approximately 10.28 log CFU g<sup>-1</sup> previously activated in reconstituted milk and gum arabic at a concentration of 20%. The microencapsulation process was performed in a spray dryer laboratory scale operating with an inlet air temperature of 120 °C and an air outlet temperature of 80 ± 3 °C. The produced microcapsules with gum arabic had a viability of 9.08 log CFU g<sup>-1</sup>. These results demonstrated an encapsulation efficiency of 88.33% for this process, thus being satisfactory and an important indicator that the use of gum arabic in the spray drying process resulted in a good viability of the probiotic microorganisms.

**Keywords:** microencapsulation, *bifidobacterium lactis* BB-12, spray dryer.

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