

NANOENCAPSULATION OF PROBIOTIC BITTER GOURD JUICE POWDER

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ABSTRACT

Momordica charantia Linn, known as bitter gourd or karela, is a cucurbit vine native to Asia. It is a revolutionary plant for its versatility as foodstuff and therapeutic applications. It is highly nutritious in protein, ascorbic acid, calcium, iron and phosphorus contents. Charantins, a mixture of steroidal saponins that are abundant in the fruit have been proposed to contribute hypoglycemic and antihyperglycemic activity. A study was conducted to produce nanoencapsulated probiotic bitter gourd juice powder using spray dryer at three different inlet air temperatures viz., 140, 150 and 160 °C with three different encapsulating agents (i.e., 30% each of maltodextrin, gum arabic and mixture of both maltodextrin (15%) and gum arabic (15%)). The powders were analyzed for proximate compositions viz., moisture content, crude fibre, crude fat, carbohydrate and ash and functional properties viz., loose and tapped bulk density, carr's index and hausner ratio. The results showed that, increasing the inlet air temperature, moisture content, water activity and bulk density were decreased, while solubility was increased. Moisture content and water activity were significantly affected by the maltodextrin concentration whereas bulk density and solubility were negatively influenced. The highest viable counts of *L. casei* were found in powders encapsulated with maltodextrin over a storage period.

KEYWORDS: Encapsulating Agents, Bitter Gourd, Probiotics, Charantins, Antihyperglycemic Activity and Spray Drying

Received: Jan 29, 2016; **Accepted:** Feb 12, 2015; **Published:** Feb 19, 2016; **Paper Id.:** IJASRAPR20163