

Cocoa Powder as Delivery Medium for Probiotic *Lactobacillus* Strains

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Received November 1, 2011; revised November 15, 2011; accepted December 10, 2011

Abstract

Three *Lactobacillus* strains previously isolated from artisanal Italian cheeses and identified by species-specific PCR as *L. helveticus*, *L. paracasei* and *L. rhamnosus*, were evaluated for the presence of functional traits, such as acidifying activity, cell surface hydrophobicity, antibiotic resistance, survival in low pH and presence of bile salts, in comparison with two commercially available probiotic strains (*Lactobacillus acidophilus* La-5 and *L. rhamnosus* GG). Subsequently, with the aim to develop a new non-dairy functional product, cocoa powder was used as a medium for incorporating freeze-dried cultures of each tested strain: survival at different time/temperature conditions was investigated. The results obtained demonstrated that artisanal dairy products are interesting sources of new probiotic strains; in particular, the dairy origin strain *rhamnosus* showed a good probiotic performance and the highest level of survival during storage. Finally we showed that cocoa powder represents a good delivery medium for lactobacilli: it could be considered a novel functional food exhibiting high antioxidant power and presenting probiotic potential.

Keywords: Lactobacilli, Probiotics, Cocoa Powder