Sensory Characteristics and Consumer Acceptance of Fruit Juice Containing Probiotics Beads in Thailand

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Abstract

Although the survival of probiotics in fruit juices, which were nominated to be a good probiotic carrier, could be improved by using microencapsulation technique in alginate bead coated with chitosan, the satisfactoriness of the consumer must be considered. Consumer assessment and sensory evaluation of this product were performed by consumers in Thailand and by using descriptive analysis, respectively. Four hundred consumers from Bangkok and the suburbs of Bangkok were served with orange and grape juices containing probiotic beads together with questionnaire in order to determine the consumer demographic, buying behavior and consumer acceptance. Most consumers bought fruit juice due to its taste (9.6) and nutritional value (8.9). However, the addition of probiotic beads influenced the sensory quality of the product by increasing the swallowing difficulty and remaining particles of the products. The majority of consumers accepted orange and grape juices containing probiotic beads (82.3 and 84.3%, respectively), giving scores of texture and overall preferences as 6.6 and 6.7 for orange juice; and 6.8 and 6.9 for grape juice. Application of probiotic beads also increased turbidity of grape juice. Moreover, more than 86% of the participants were willing to try and purchase the product, reflecting existence of a potential market for fruit juice containing probiotic beads.

Keywords: probiotics, fruit juice, consumer acceptance, healthy drink, microencapsulation.

1. Introduction

The interest in probiotic products has been increased in the last two decades due to the health awareness of consumers (Menrad 2002). Probiotics are living microbial supplements, which beneficially affect the host by controlling intestinal infection, controlling serum cholesterol levels, beneficially influencing the immune system, improving lactose utilization in lactose mal digestors, and having anticarcinogenic activity (McNaught and MacFie 2001; Saarela et al. 2002; Rafter 2003). Currently, industrial probiotic food products mainly belong to dairy products such as yogurt and fermented milk. Nevertheless, lactose intolerance and the cholesterol content in milk are two drawbacks related to the consumption of consumers. Fruit juice is found as a healthy food product, and is currently consumed by a large percentage of the global consumer population (Verbeke 2005). Fruits are healthy foods because they are rich in antioxidants, vitamins, dietary fiber and minerals. In addition, fruits do not contain any dairy allergens, such as casein and lactose. (Luckow and Delahunty 2004a). Fruit juice was also suggested to serve as a good medium for probiotics (Tuorila and Cardello 2002).

Although cooperation of probiotics in fruit juices either by probiotication process, which allowed probiotic bacteria to grow in fruit juice, or direct addition provided the health benefit to consumers, the sensory quality of the product was not accepted (Krasaekoopt and Chea 2007). Luckow and Delahunty (2004a) demonstrated the sensory “off-flavors” in probiotic fruit juices.