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Development of Job's Tears Yogurt

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Abstract

This research aimed to formulate the Job's tears yogurt using Job's tears beverage. Simultaneously, the effects of added Job's tears beverage on microbiological behavior of yogurt cultures, chemical and sensory properties of the product were investigated as well as consumer acceptance. The Job's tears beverage was used to replace the milk to the extent of 0, 25, 50, 75 and 100% in the yogurt formula. The presence of Job's tears affected the acid production of yogurt cultures during fermentation. Although yogurt containing 25% of Job's tears beverage obtained the highest scores for sensory properties, the texture of the product was poor. Therefore, additions of 5, 10 and 15% milk powder were studied to improve the yogurt texture. Yogurt made by 10% milk powder achieved the highest preference scores. Most of the consumers (89%) accepted the product with preference scores of color, texture, flavor and overall liking of 7.05, 7.03, 6.55 and 7.27, respectively. Addition of Job's tears remarkably increased fiber and protein contents and influenced the color, flavor and texture of the product.

***Keywords**:* Coix lacryma-jobi *L., fermented dairy product, microbiological behavior, consumer acceptance, sensory property, milk powder.*

1. Introduction

Job's tears (*Coix lacryma-jobi* L.), commonly known as coix, are originally from India and now are native to the East and Southeast Asian region in China, Japan, Myanmar, the Philippines, and Thailand. Their seeds have been used to produce food products as well as ornamental products such as rosaries and necklaces. De-hulled mature seeds can be cooked and consumed together with cooked rice. The polished and milled flour can be sometimes mixed with water and consumed as cooling drink like barley or flour water. The pounded grain of Job's tears can also be used for brewing of beer in the Garo, Karbi and Naga tribes (Burkill 1935). In China, they are used as traditional medicine and supplementary medicinal foods. The beneficial health effects of Job's tears are: (i) reducing liver fat accumulation, (ii) protecting from tumor stimulating compounds, (iii) protecting against viral infection, (iv) reducing allergic reaction, (v) reducing coronary artery disease and arthrosclerosis, and (vi) reducing osteoporosis (Chang *et al*. 2003; Hung and Chang 2003; Shih *et al*. 2004; Yu *et al*. 2011). In Thailand, after the seed coats are removed, the seeds are cooked, dried, deep fried or baked and then consumed as a snack with different flavors. Job's tears flour can be obtained after polishing and milling and used as food ingredient. Addition of Job's tears flour to substitute the wheat flour in bakery products is also of interest. Dough made from Job's tears will not be raised during fermentation due to lack of gluten. A good mixture in bakery products is 70% wheat flour and 30% Job's tears flour in bread and cookies (Chawakorn 2006; Cheappensuk 2006; Reungkajorn *et al*. 2007). The seeds are also boiled with water to produce Job's tears beverage, which is available in the market as an alternative healthy cereal drink.

Fermented products such as yogurt made from Job's tears have not been reported elsewhere, therefore, this research aimed to develop Job's tears yogurt. Some characteristics of the product such as chemical and sensory properties as well as consumer acceptance were also investigated.