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Effect of Fat Percentage and Prebiotic Composition on Proteolysis, ACE-Inhibitory and Antioxidant Activity of Probiotic Yogurt

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Abstract : In recent years, the consumption of functional foods, including foods containing probiotic bacteria, has come to notice. Milk proteins have been identified as a source of angiotensin-I-converting enzyme)ACE(inhibitory peptides and are currently the best-known class of bioactive peptides. In this study, the effects of adding prebiotic ingredients (inulin and wheat fiber) and fat percentage (0%, 2% and 3.5%) in yogurt containing probiotic Lactobacillus casei on physicochemical properties, degree of proteolysis, antioxidant and ACE-inhibitory activity within 21 days of storage at 5 ± 1 °C were evaluated. The results of statistical analysis showed that the application of prebiotic compounds led to a significant increase in water holding capacity, proteolysis and ACE-inhibitory of samples. The degree of proteolysis in yogurt increases as storage time elapses (P < 0.05) but when proteolysis exceeds a certain threshold, this trend begins to decline. Also, during storage time, water holding capacity reduced initially but increased thereafter. Moreover, based on our findings, the survival of Lactobacillus casei in samples treated with inulin and wheat fiber increased significantly in comparison to the control sample (P < 0.05) whereas the effect of fat percentage on the survival of probiotic bacteria was not significant (P = 0.095). Furthermore, the effect of prebiotic ingredients and the presence of probiotic cultures on the antioxidant activity of samples was significant (P < 0.05).

Keywords : probiotic yogurt, proteolysis, ACE-inhibitory, antioxidant activity
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