Inhibition of the Angiotensin I Converting Enzyme (ACE) and proteolysis of non-fat probiotic yogurt

Abstract

Yogurt is an important source of many biologically active peptides with specific health benefits. The majority of the bioactive peptides produced during yogurt manufacture are related to angiotensin converting enzyme inhibitory (ACE-I) peptides. The present study evaluated the proteolysis and angiotensin converting enzyme (ACE) inhibitory activities of non-fat probiotic yogurt supplemented with sodium caseinate (0 to 4%), and *Mentha piperita* (peppermint) extract (0 to 0.4%) during 20 days of storage. Good correlation (R = 0.90) was found between the growth of *Lactobacillus casei* LFTI® L26 and ACE inhibition in all samples during the initial stages of storage, as compared to the control yogurt, with a significant ($p < 0.05$) decrease after storage. The results showed that the addition of sodium caseinate and peppermint extract had a significant ($p < 0.05$) effect on proteolysis and the viability of *L. casei* LFTI® L26, enhancing the ACE activity. The IC50 values of the sample containing 0.4% of peppermint and of the sample containing 4% of sodium caseinate were 0.12 and 0.02 mg/mL respectively. The results showed that the use of 4% of sodium caseinate and 0.4% of peppermint extract could provide higher probiotic viability (1.3×10^7cfu/g) on the 20th day of storage.

Keywords:
Probiotic; Sodium caseinate; Peppermint extract; Proteolysis; Angiotensin converting enzyme; Yogurt