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PRODUCTION OF ANTIHYPERTENSIVE BIOACTIVE PEPTIDES IN FERMENTED FOOD BY LACTIC ACID BACTERIA – A REVIEW

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ABSTRACT

Antihypertensive bioactive peptides are one of the natural sources that can be used in preventing hypertension. Lactic acid bacteria (LAB) are known to be able to produce antihypertensive bioactive peptides in fermented foods. Angiotensin converting enzyme (ACE) plays a fundamental role in the *Renin-Angiotensin System*, which can increase blood pressure through the inactivation of decapeptide conversion process of Angiotensin I into Angiotensin II. ACE is one of the effective targets for reducing hypertension. ACE inhibitory (ACE-I) peptides had the ability to inhibit ACE by binding to the active site of the ACE enzyme. ACE-I activity were associated with the presence of aromatic and aliphatic amino acids such as Pro, Phe and Tyr on C-terminal and Val and Ile at N-terminal. The formation of ACE-I peptides in fermented foods is associated with proteolytic activity of LAB during fermentation. LAB is able to secrete extracellular proteinases breaking down proteins into simpler molecules. ACE-I peptides are generally short peptides or tripeptide consist of 2 to 20 amino acid residues with a molecular weight range of <5 kDa. The formation of ACE-I peptides in fermented foods is influenced by the LAB strain, substrate and fermentation condition. This review aimed to provide information related to formation of ACE-I peptides by lactic acid bacteria in fermented foods, the mechanism of and the factors influence the formation of ACE-I peptides.