

Biotechnologies towards Sustainable Development in Malaysia

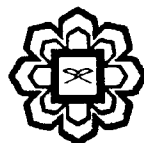
Zarina Zainuddin

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Zarina Zainuddin



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Chapter 14

Bacteriocin as safe antimicrobial agent

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Bacteriocin as natural biopreservatives

Despite of technological advances, human are still struggling in developing a good and efficient method to preserve food. Biotechnology can offers various opportunities in coming up with ways to address this prolong problem. The use of microorganisms and their metabolites as antimicrobial agent to prevent food spoilage and to extend the shelf life of foods has been a growing interest in the last decade (Stiles, 1996). Lactic acid bacteria (LAB) are of particular interest as biopreservative organisms. The preserving effects of these organisms are not only due to the production of fermentation end product such as organic acids; but may also be due to the formation of small, heat-stable inhibitory peptides, often referred to as bacteriocins (Eijsink, 2002; Klaenhammer 1988). The researches on bacteriocin have intensified over the last decades as consumers have shown great interest and demand on more natural and safer food (Klaenhammer, 1993).

Bacteriocins of LAB were previously been arranged into three classes based on their composition, size, mode of action, mechanism of export, and inhibitory spectrum (Eijsink *et al.*, 2002; Klaenhammer, 1993). So far, only nisin, the most studied bacteriocin produced by some strains of *Lactococcus lactis*, is produced commercially. This is followed from its designation as GRAS substance in the USA and specific approval in the EU. Today, nisin is an approved food