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## The Role of Lactic Acid Bacteria during Fermentation on Safety and Quality of Fermented Foods

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### Summary

Indonesia, one of Asian countries, has many kinds of fermented food which coverage area are from Sumatera to Papua. Fermented food product is processed through fermentation process, which certain microorganisms play an important role during the process. Growth of undesirable wild microorganisms may cause fermentation failure and results undesirable products. Many researches have been done to explore fermented foods from several areas such as *dadih* and *tempoyak* (Sumatera); *ikan peda*, *petis*, *oncom*, *tape*, *tempe* and *kecap* (Jawa); *brem*, *urutan*, *bebontot*, *brengkes* (Bali); *perahancak* and sour horse milk (NTB); *sei* (NTT); and *bekasang* (Sulawesi). From these products are also explored many kinds of useful microorganisms. Most of them are a group of lactic acid bacteria (LAB), which has been used as starter culture and probiotic as well. By using LAB as starter culture showed some benefit such as accelerate the process and ensure quality and safety of the products. During fermentation, LAB produce lactic acid and other metabolites that respectively lower the pH and limit the growth of pathogenic microorganisms. The bacteria also release hydrolytic enzymes (lipases and proteases), which are able to break down macromolecules, such as lipids and proteins, resulting in the production of precursors for specific aroma. The discussion in this paper is focused on the role of LAB on safety and quality of fermented food, especially *urutan* (Balinese fermented or dried sausage), sour horse milk, and pickle of bamboo shoot. The LAB potential isolated from those natural products are potential to use as starter culture. The bacteria as starter culture can control the fermentation and prevent the growth of pathogenic bacteria. *Pediococcus acidilactici* U318 isolated from *urutan* is the bacteriocin-producing bacteria, which could inhibit the growth of undesirable bacteria in the product. The bacteria produce bacteriocin and organic acids, which may suppress the growth of pathogenic bacteria and ensure the product safety. The growth of LAB in horse milk during storage could control the milk safety and the bacteria themselves are promoted as probiotic, which give a positive impact

to the human health. Pickle of bamboo shoot produce naturally is also lactic fermentation. The LAB growth during process of pickling could control the quality of the product. The characteristics of the bacteria as probiotic are also discussed.

**Key words:** Lactic acid bacteria, fermented food, *urutan*, sour horse milk, bamboo shoot pickle

