Characterization of anti-listerial lactic acid bacteria isolated from Thai fermented fish products

Thai fermented fish products were screened for lactic acid bacteria capable of inhibiting Listeria sp. (Listeria innocua). Of 4150 assumed lactic acid bacteria colonies from MRS agar plates that were screened by an agar-overlay method 58 (1.4%) were positive. Forty four of these strains were further characterized and 43 strains were inhibitory against Listeria monocytogenes. The strains were inhibitory to other Gram- positive (lactic acid) bacteria probably because of production of bacteriocins. All 44 strains inhibited both Vibrio cholerae and Vibrio parahaemolyticus and 37 were inhibitory to a mesophilic fish spoilage bacterium tan Aeromonas sp.). Inhibition of Gram-negative bacteria was attributed to production of lactic acid. Most strains were identified as Lactobacillus spp., and all grew well at ambient temperatures (25-37 degrees C) and tolerated up to 6.5% NaCl. Glucose was fermented rapidly in laboratory media whereas pH decreased only very slowly in fish juice supplemented with 4% glucose and 3.5% NaCl or in a rice-fish mixture. Only four of 44 isolates could degrade and ferment complex carbohydrates such as rice, potatoes and maize starch. This indicates that other types of bacteria may be responsible for the rapid spontaneous fermentation of the products or that other yet-unknown factors ensure rapid fermentation. Overall anti-listerial lactic acid bacteria do occur in fermented fish products and the antibacterial activity against pathogenic bacteria indicates that they may be important in product safety. (C) 1998 Academic Press Limited

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**Improved utilization of low-value fish**
The specific objectives of this project were in three areas: 1. To examine and adapt traditional Asian preservation technologies for fish products. 2. To investigate and optimise the fermentation process used in traditional Asian fish products. 3. To study the composition and stability of lipids from low-value fish species. The results have identified potential new use of a large number of low-value fish species. The properties of Lactic Acid Bacteria (LAB) isolated from low salt fermented products have been studied and the capacity to ferment inulin from garlic was found to be an important criteria for selection of starter cultures, since garlic is added to most low-salt fermented products. The fatty acid profile from a great number of tropical fish has been determined. The stability of fish oil and the potential of spices as antioxydants has also been investigated.

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