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, 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