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NAPARAT KAEWKUAKUL : DEVELOPMENT OF MIXED CULTURE  
LACTOBACILLUS PRODUCTS. THESIS ADVISOR : AROME PONGPAN,  
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Several researchers have reported that consumption of lactobacillus products resulted in additional health, particularly beneficial effects on the human gastrointestinal tract. In this study, 3 selected intestinal strains of lactobacilli, namely *L. acidophilus* 51, *L. paracasei* S14 and *L. fermentum* 71, were studied in order to develop them as mixed culture for use as food supplement and/or starter culture. It was found that all 3 strains could tolerate 1% bile salt, adhere well to smooth surface of aluminium wire and inhibit the growth of *E. coli*, *S. aureus*, *B. cereus* and *S. typhimurium*. These 3 strains were non-toxic to mice by acute toxicity test. The comparative study of the efficiency of different suspending media demonstrated that 20% skim milk + 1% glutamate gave the highest survival rate after freeze-drying. Thus, these lactobacilli were prepared as mixed culture powder, packed in capsules, using carrot powder as diluent and Aerosil as lubricant. The lactobacillus capsules complied with uniformity of weight and disintegration test (BP 1993). The capsules were kept in closed container at 4°C. Survival counts were made monthly to simulate in-use condition by using bacitracin and cloxacillin as the markers in determining the count of mixed culture in capsules. The viable cell count decreased exponentially after storage probably due to moisture and oxygen that occurred after opening, though the capsules' physical properties remained somewhat static. In addition, trial yoghurt was made using each strain of lactobacilli together with *S. thermophilus* in 1:1 ratio. Total acid production was slower than *L. bulgaricus* + *S. thermophilus* resulting in slightly less favorable aroma and flavor. CFU/g of cultures before and after storage at 4°C for 5 days was more or less the same at  $\sim 10^9$ . However, lactobacilli in this study are commonly found in intestinal tract hence better adhesion is expected, whereas *L. bulgaricus*, the commercial yoghurt strain is normally unable to colonize the bowel and is not usually isolated from the feces.