

พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

C627128 : MAJOR FOOD TECHNOLOGY

KEY WORD:

LACTIC ACID BACTERIA / TRADITIONAL FERMENTED FOODS / ANTIMICROBIAL SUBSTANCES

KITTIMA JARIYAPHRUT : IDENTIFICATION AND SCREENING OF LACTIC ACID BACTERIA PRODUCING

ANTIMICROBIAL SUBSTANCES FROM TRADITIONAL FERMENTED FOODS. THESIS ADVISER : ASSI. PROF.

SUWIMON KEERATIPIBUL, Ph.D. THESIS COADVISOR : RUDD VALYASEVI, Ph.D. 143 pp. ISBN 974-636-364-6

326 strains of lactic acid bacteria (LAB) were isolated from Thai fermented foods. They were identified by morphological observations, physiological test, biochemical test and protein profile using Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis (SDS-PAGE). 124 strains were found to be gram positive and paired cocci or tetrad. Further identification by physiological and biochemical test found that 115 strains belong to *Pediococcus pentosaceus* and 9 strains were *P. acidilactici*. 202 strains were found to be gram positive and chained rods, and the physiological and biochemical test found that 96 strains were *Lactobacillus plantarum*, 92 strains *L. pentosus*, 8 strains *L. fermentum*, 3 strains *L. sake* and 3 strains *L. brevis*. The identities of these strains were confirmed by comparison of protein profiles.

326 isolates of lactic acid bacteria were screened for the ability to produce antimicrobial substances by agar diffusion method. The indicator strains used were *Escherichia coli*, *Bacillus subtilis*, *Staphylococcus aureus*, *Micrococcus varians*, *P. pentosaceus*, *L. pentosus* and *Candida albicans*. It was found that the numbers of strain tested positive for at least one of the indicator strains were 4 strains for *E. coli*, 5 strains for *B. subtilis*, 2 strains for *S. aureus*, 5 strains for *M. varians*, 7 strains for *P. pentosaceus* and 8 strains for *L. pentosus*. The selected strains were then tested for their abilities to kill *P. pentosaceus* ATCC 33316 and *L. pentosus* ATCC 8041. The antimicrobial substances from *P. pentosaceus* N279, N111, N38 and *L. pentosus* 940 could kill 52.55, 46.19, 42.89 and 37.0 % cells of *P. pentosaceus* ATCC 33316, while the antimicrobial substances from *P. pentosaceus* N279 could kill 41.76 % cells of *L. pentosus* ATCC 8041.

Dialysis of antimicrobial substances using membranes of M.W. cut off 1,000 and 10,000 suggested that the molecular mass of the compounds were below 1,000 daltons. The antimicrobial substances from *L. pentosus* 940 and *P. pentosaceus* N279, N111, N38 were treated with proteinase K. It was found that the treatment did not inactivate the activity of the compounds. This suggested that the antimicrobial substances were not proteinaceous.

ภาควิชา.....เทคโนโลยีทางอาหาร.....

สาขาวิชา.....เทคโนโลยีทางอาหาร.....

ปีการศึกษา.....2539.....

ลายมือชื่อนิสิต.....*Kitima Jariyaphrut*.....

ลายมือชื่ออาจารย์ที่ปรึกษา.....*Dr. Rudd Valyasevi*.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....*Dr. Suwimon Keeratipibul*.....