Abstract

Probiotic, a life microorganism that prophylaxis to the host. There are two types of probiotic sources, either conventional sources (milk) or unconventional sources (animal gut, bee gut). In this study, five *Lactobacillus kunkeei*, one *L. brevis, Bacillus velezensis*, *B. vallismortis*, *B.pumilus*, and *B. sp* that has been isolated from bee gut were characterized for potential probiotic through safety and functionality testing. The safety testing was done through antibiotic susceptibility and hemolytic activity. Bacteria that passed the safety testing underwent functionality testing. Functionality testing was done by giving different types of treatment that mimic the human organ physiological stress such as lysozyme, low pH, pepsin, and pancreatin. Also, cell surface hydrophobicity and β-galactosidase activity of the bacteria were observed. The result showed that all of the bacteria were shown resistant to streptomycin and susceptible to other antibiotics given. All *Lactobacillus* strains were shown γ-hemolytic, while all *Bacillus* strains were shown α-hemolytic. Since probiotics should be safe, no hemolytic, and less resistance toward antibiotics. Therefore, all *Lactobacillus* strains were underwent functionality testing and all *Bacillus* strains were excluded from the test. The result of functionality testing showed that most of the *L. kunkeei* and *L. brevis* was tolerant to lysozyme, low pH, pepsin, and pancreatin. Also, different ranges of cell surface hydrophobicity and β-galactosidase activity were shown in all *Lactobacillus* strains. However, among *Lactobacillus* strains, *L. kunkeei* with code of CSI 5 was shown advantages over other *Lactobacillus*. Therefore *L. kunkeei* CSI 5 can be a potential probiotic for humans.

Keyword : *probiotic, bee, lactobacillus kunkeei, lactobacillus brevis, Bacillus, safety testing, functionality, thailand*