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Screening of carbohydrate-utilizing bacteria as a new probiotic candidate for development of Thai-pigmented rice probiotic products

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Currently, functional food products are regarded as benefits to human health. Therefore, the development of functional dietary supplements has increased in the food industry. One of the high demand dietary supplements is probiotic products which are now generally popular with consumers. The ideal use of Thai rice cultivars as carriers for probiotics was approached to develop new multifunctional food products. The purposes of this research were to screen for carbohydrate-utilizing bacteria isolated from rice and to evaluate the preliminary probiotic properties. The isolate KPS-FR07 had an ability to utilize carbohydrates of all Thai rice cultivars. The carbohydrate-utilizing bacteria were identified as *Bacillus coagulans* on the basis of morphological and molecular analysis. This strain was tested for its antibacterial activity using agar diffusion method. It was found that antibacterial substances produced by *Bacillus coagulans* KPS-FR07 had an inhibitory effect against *Bacillus cereus*. From the result of haemolytic activity, *Bacillus coagulans* KPS-FR07 was non-haemolytic. In addition, this strain exhibited rapid growth in nutrient broth medium and the highest number of cells was at hour 36 of incubation ($10.5 \log_{10}$ CFU/mL). Moreover, *Bacillus coagulans* KPS-FR07 also exhibited high antioxidant activity. This strain will be further studied for probiotic properties and developed a novel Thai-rice synbiotic products.

Biography

Saran Promsai has completed his PhD from Chiang Mai University. He is a Lecturer at Kasetsart University. His work is focused on development of probiotic-supplemented rice products and functional food.

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