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## ISOLATION OF THERMOTOLERANT BACTERIA PRODUCING FIBRINOLYTIC ENZYME

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### Abstract

Fibrinolytic enzymes were widely used in the treatment of cardiovascular diseases. However, the efficiency of the commercial enzymes are still lack of perfection because there are many side effects as well as not tolerant to downstream processing such as heat sensitive during spray drying process. Therefore, this study presents newly isolated thermophiles bacteria producing fibrinolytic enzyme. Sample was collected from Hot Spring Selayang at Selayang Selangor. Spread plate agar containing skim milk powder growth at pH 7, 53 degrees C for 24 hours was utilized to isolate thermotolerant bacteria producing protease. Further isolation on bacteria producing fibrinolytic enzyme was carried out using fibrin plate. 16S rDNA gene sequence analysis was used to identify the genotype of the isolates. 27 colonies of thermotolerant bacteria were isolated, however, only 19 of them showing proteolytic activity. All of the 19 isolates are motile and cocci in shapes, with 4 types of arrangement, which are single, diplo (pair), strepto (chain) and staphylo (cluster). HSP04 and HSP11 are gram positive bacteria and others are gram negative. From 19 isolates only 6 were chosen for further analysis. HSP23 showed the highest fibrinolytic activity compared with others. HSP23 was identified as *Bacillus licheniformis* with 98 % similarity to *Bacillus licheniformis* DCM 13 and *Bacillus licheniformis* strain ATCC 14580.

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