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Isolation and Identification of *Bacillus* Strains from Various Tarhana Samples

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Abstract

Tarhana is a Turkish fermented food that is consumed extensively all over the country. It is mainly produced by fermenting the dough prepared using wheat flour, yogurt, water, some vegetables, and spices. Then the fermented dough is dried and consumed as soup after grinding. There are many different types of tarhana depending on the region. The main fermentation microorganisms in tarhana are lactic acid bacteria and yeasts. However, in this study we have intended to isolate *Bacillus* strains from tarhana samples. Strains of the genus *Bacillus* are Gram-positive, endospore-forming aerobic or facultatively anaerobic, and generally found in soil. They have substantial applications in the industry owing to their multifunctional properties, including the production of various enzymes, exopolysaccharides, antimicrobial substances, etc. In the study, more than 80 tarhana samples were collected from different regions in Türkiye. For the isolation, diluted samples were kept at 80 ºC for 30 min to destroy non-spore-forming microorganisms. The serial dilutions were prepared and inoculated on nutrient agar plates. Then they were incubated at 37 ºC for 24 h. Typical colonies were chosen and streaked again on nutrient agar plates and incubated. These procedures were repeated thrice in order to assure the selection of single colonies. A total of 480 microorganisms were isolated. The isolates were deposited in 25% glycerol at -45 ºC. Gram staining, spore-formation, catalase, and motility tests were applied to confirm the *Bacillus* isolation. The results revealed that the tarhana is also a rich source of *Bacillus* strains. Moreover, the amylolytic and proteolytic activities of the isolates were also determined, and the majority of the isolates were able to produce amylase and proteases.

Key Words: *Tarhana, Bacillus, Isolation, Identification*

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