



Research article

**ISOLATION, IDENTIFICATION AND CHARACTERISTICS OF  
*HEYNDRICKXIA COAGULANS* STRAINS FOR INCLUSION IN  
PROBIOTIC PREPARATIONS**

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**Abstract**

The inclusion of spore-forming bacteria in probiotic preparations for human and veterinary applications is a new trend in food supplements. The objective of this study was to isolate, identify and characterize the biological activities of two novel strains for the purpose of inclusion in probiotic supplements for animal feed, for food supplements for humans, as well as in the composition of plant protection preparations. The two strains were identified as *Heyndrickxia coagulans* through phenotypic and molecular genetic methods. Both strains were investigated for their total phenolics contents and antioxidant activity (DPPH and FRAP methods). In a series of experiments, the antibacterial and antifungal activity of the biomass and the cell-free supernatant of the cultural medium of *Heyndrickxia coagulans* after the cultivation of the strains in three different cultural media were determined. They showed significant difference in their antioxidant activity ( $p > 0.05$ ) and their antimicrobial activity against *Escherichia coli*, *Salmonella enterica* subsp. *enterica* serovar Enteritidis, *Salmonella enterica* subsp. *enterica* serotype Abony, *Staphylococcus aureus*, *Listeria monocytogenes*, *Pseudomonas aeruginosa*, *Bacillus cereus*, *Candida utilis*, *Saccharomyces cerevisiae*, *Aspergillus niger*, *Penicillium chrysogenum*, *Aspergillus flavus*, *Fusarium moniliforme*. It was established that one of the strains exhibited clear potential for inclusion in probiotic and plant protection preparations.