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Evaluation of native probiotic *bacillus tequilensis* strain based on enzyme production and its protective activity against foodborne disease

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Probiotic strains of *Bacillus* Species are used in industrial poultry production because of their ability to produce enzymes enhancing the absorption of nutrients and reducing foodborne disease. The aim of this study was to isolate native probiotic with above abilities. Twenty-five samples of feces from seven chicken's farms were collected in Golestan province located in northern Iran. After isolation of *Bacillus* spp. on nutrient agar, the ability of producing amylase and phytase and their probiotic characteristics such as bile salt, acid and antibiotic resistance, the ability to attach to intestinal epithelial cells and inhibit *Salmonella Typhimurium* invasion were evaluated. The selected strains were identified by Polymerase Chain Reaction (PCR) and 16S rDNA sequence. From 86 isolates, K03, K02, and K20 were identified as *Bacillus tequilensis* and K10 as *Bacillus subtilis* that had desirable characteristics. The *Bacillus tequilensis* K03 showed production ability of amylase and phytase and the highest attachment to intestinal epithelial cells and could inhibited *Salmonella Typhimurium* attachment. Therefore, it can be used as a probiotic in chicken diet in order to improve the production quality and lowering the incidence of salmonellosis in chickens and human

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