

Screening of Lactobacilli and Bifidobacteria from Bangladeshi Indigenous Poultry for Their Potential Use as Probiotics

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Abstract : In Bangladesh, the use of imported probiotics in poultry is gradually being increased. But surprisingly, no probiotic bacteria have been isolated yet in Bangladesh despite the existence of scavenging native poultry as potential source that is seemingly more resistant to GIT infection as well as other diseases. Therefore, the study was undertaken to isolate, identify and characterize the potential probiotic Lactobacillus and Bifidobacteria strains from Bangladeshi indigenous poultry, and to evaluate their suitability to use in poultry industry. Crop and cecal samples from 61 healthy indigenous birds were used to isolate potential probiotics strains following conventional cultural methods. A total of 216 isolates were identified following physical, biochemical and molecular methods that belonged to the genus Lactobacillus and Bifidobacteria. An auto-aggregation test was performed for 180 and 136 isolated lactobacilli and bifidobacteria strains, respectively. Twelve lactobacilli isolates and 7 bifidobacteria isolates were selected because of their convenient aggregation. In vitro tests including antibacterial activity, resistance to low pH, hemolytic activities etc. were performed for evaluation of probiotic potential of each strain. Under the in vitro conditions and with respects to the probiotic traits, three lactobacilli; LS16, LS45, LS133 and two bifidobacteria, BS21 and BS90 were found to be potential probiotic strains. Thus, they are proposed to be evaluated for their in vivo probiotic properties. If the proposed strains are found suitable as the probiotics to be used in commercial poultry industry, it is expected that the local probiotics would be more beneficial and would save the huge amount of money that Bangladesh spends every year for the importation of such materials from abroad.

Keywords : Bangladeshi poultry, gut microbiota, lactic acid bacteria, scavenging chicken, GIT health

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