Molecular Detection and Antimicrobial Activity of Enterolysin a Endopeptidase among Enterococcus faecalis Strains

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Background & Objectives: Enterococci are one of the gastero- intestinal tract commensal bacteria in humans and animals with ability to produce antimicrobial peptids. Enterolysin A is a large (calculated molecular weight of 34,501 Da), heatlabile bacteriocin and therefore fits the general characteristics of class IV bacteriocins. Target of present study is Molecular detection of enterolysin A gene among animal isolates of Enterococcus faecalis for their potential as biopreservatives in food or feed.

Methods: In this study occurrence of class IV enterocin structural gene (enterolysin A) in a target of Enterococcus faecalis isolated from 63 samples of different locales of Tehran animal faeces have been surveyed. Enterococcal strains were isolated from other faeces Gram-positive and negative bacteria using Bile Aesculin Azide Agar medium and after strains purifications, *E. faecalis* species identification and occurrence of enterolysin A gene was performed by PCR Methods. Cell-free neutralized supernatant (of selected gene positive strains) was used to test bacteriocin production and antimicrobial spectrum of endopeptidase was assayed by diffusion Methods (disk) on the gram-positive and negative indicators bacteria.

Results: 10 strains of *E. faecalis* were purified from 63 isolated samples. 6 strains of this 10 E. faecalise strains (60%) had enterolysin A gene that they inhibited growth of indicator bacteria such as clinical strain of Staphylococcus epidermidis, Listeria monocytogenes Bacillus subtilis and Bacillus cereus.

Concolusion: This strains produce an endopeptidase, enterolysin A encoded by enl A, which is homologous to other cell wall lytic enzymes such as lysostaphin and zoocin A. However, unlike these enzymes enterolysin A has a broad spectrum of activity and can lyse a wide range of Gram-positive bacteria.

Keywords: *Enterococcus faecalis*; PCR; Enterolysin A