Kubra Celik et al., J Food Process Technol 2017, 8:9(Suppl)
DOI: 10.4172/2157-7110-C1-069

The anti-biofilm and antimicrobial activities lyophilized exopolysaccharides (l-EPSs) from *Lactobacilli Isolates*

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The poultry industry is looking for alternative products that can help improve chicken gut health such as prebiotic, probiotic, essential oils and plant extracts and improve immunity and growth. Exopolysaccharides (EPSs), a complex biopolymer produced by lactic acid bacteria, have gained importance and are generally regarded as safe (GRAS) due to their lack of health risks. The objective of this work was to investigate the anti-biofilm, antimicrobial activities of lyophilized-EPSs produced by Lactobacillus spp. isolates. In the present study, we used forty-four Lactobacillus spp. bacteria that isolated from chicken's feces. This study investigated the EPS production of these isolates. Both two isolates were selected from the 44 isolates according to their highest EPS production and two isolates were selected from these isolates according to their lowest EPS production. The exopolysaccharides of these isolates were lyophilized. Anti-biofilm and antimicrobial abilities of these four bacteria, culture filtrates of the bacteria, l-EPSs, and bacteria + l-EPSs on pathogen bacteria were determined. In these isolates, EPS production was assessed varies from 7.53 -353.36 mg/L. The highest exopolysaccharide production was designated in the Lactobacillus spp. 27L (353.36 mg/L) and Lactobacillus spp. 66L (349.86 mg/L). The lowest exopolysaccharide production was decided in Lactobacillus spp. 76L (14.53 mg/L) and Lactobacillus spp. 21L (7.53 mg/L). The biofilm-forming capacity of 12 pathogen bacteria was defined and three strains with the highest biofilm-forming capacity were selected as test bacteria for anti-biofilm and antimicrobial studies. Highest anti-biofilm effects were determined by the l-EPS to 27L (87%) against Escherichia coli ATCC 11229. All the selected strains showed antimicrobial activity on Escherichia coli ATCC 11229, while the highest activity was found in culture filtrate to 66 L (10 mm).

Biography

Kubra Celik is a graduate student at Gazi University from Department of Biology, Faculty of Science.

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