

Original Paper

## Antimicrobial effect of probiotics in combination with prebiotics against *Staphylococcus aureus* and *Listeria monocytogenes*

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### Abstract

**Background and Objective:** Probiotic bacteria have beneficial effect on consumer health. This study was done to investigate the antimicrobial effect of several probiotic in combinations with different prebiotics against food pathogenic bacteria including *Staphylococcus aureus* and *Listeria monocytogenes*.

**Methods:** In this descriptive - analytical study, probiotics including *Lactobacillus plantarum*, *L. acidophilus*, *L. fermentum*, *L. casei* and *L. rhamnosus* with prebiotics (1%) including raffinose, lactulose, inulin and trehalose were cultured in MRS broth for 24 hours at 30°C in anaerobic conditions. Antimicrobial property of them was determined with *well diffusion plate's* method.

**Results:** Probiotics in the presence of prebiotics indicated the higher antimicrobial effect compared to probiotics alone ( $P < 0.05$ ). The application of prebiotics such as *L. casei* with raffinose showed higher antimicrobial property against *Listeria monocytogenes* than the free prebiotics consumption. The diameter of inhibitory growth zone in the presence of raffinose as a prebiotics was 14.66 mm and its absence reduced to 11.75 mm.

**Conclusion:** Antimicrobial effect of probiotics in combination with prebiotics against *Staphylococcus aureus* and *Listeria monocytogenes* was higher than probiotics consumption alone.

**Keywords:** Probiotic, Prebiotic, Antimicrobial Property, *Staphylococcus aureus*, *Listeria monocytogenes*

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