

Antibacterial activity of lactobacillus isolated from Iranian traditional sourdough on methicillin resistant staphylococcus aureus, *Kelebcicola pneumonia* and *Pseudomonas aeruginosa*

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Background and Aims: Probiotics are lives microorganism, which have beneficial effects on human health with antibacterial activities. The present study was initiated to investigate the effect of isolates of lactobacilli of Iranian traditional sourdough on methicillin resistant *Staphylococcus aureus*, *Kelebcicola pneumonia* and *Pseudomonas aeruginosa* isolated from urinary tract infections.

Methods: Antibacterial activity of supernatant and bacterial cell of *Lactobacillus fermentum* and *Lactobacillus casei* was isolated from the sourdough using spot and well diffusion agar test on several pathogenic bacteria, were assessed. The antibacterial effects of common antibiotics on mentioned bacteria was examined. MRS agar media and Mueller Hinton agar media was used to study the antibacterial effects of the lactic acid bacteria isolates on the growth of pathogenic bacteria. The pathogenic strains included; 12 strains of on methicillin resistant *Staphylococcus aureus*, *Kelebcicola pneumonia* and *Pseudomonas aeruginosa*.

Results: The most inhibitory isolate obtained was identified by *Lactobacillus fermentum* in spot test. This isolate completely was inhibited the growth of *Pseudomonas aeruginosa* by 49 mm non-growth zone. In well diffusion agar test *Lactobacillus casei* were assessed the most and less inhibitory effect on methicillin resistant *Staphylococcus aureus* and, *Kelebcicola pneumonia* respectively with 25 and 21 mm. The finding also were showed that most of the common pathogenic bacteria were resisted to antibiotics: Penicillin, Ampicillin, vancomycin, methicillin, amikacin, erythromycin, ciprofloxacin and Chloroamphenicol.

Conclusions: These findings confirm that both strains of *Lactobacillus* were revealed an inhibitory effect on all pathogenic bacteria, which were also resistant to antibiotics. The larger of non-growth zone in the spot test was indicated of alive bacteria cell effects. Given the increasing prevalence of medicinal resistance and abundance of infectious diseases, the identification of alternative solutions seems to be essential. Medicinal supplements of lactic acid bacteria can be considered as good solutions to prevent the irrational use of antibiotics.

Keywords: Antibacterial activity; *Lactobacillus*; Probiotics; Antibiotic resistance; Urinary tract infection