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**Article** *in* Biosciences Biotechnology Research Asia · December 2012

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Volume No. 9 Issue No.: 2 Page No.457-466 December

# Synergistic Effects of Supernatant from Lactobacillus plantarum Cultured Medium and Conventional Antibiotics Against Pseudomonas aeruginosa

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**Received on :** 01 October 2012

**DOI: http://dx.doi.org/10.13005/bbra/1024**

## ABSTRACT

Antimicrobial resistance development resulted by using of antibiotics in treatment of infectious diseases. Therefore, there is a big demand for new sources of treatment again such as using of drug. In The other hand reduce antibiotic dose required to decrease the associated side effect. In this study the synergistic action of Conventional Antibiotics and cell free supernatant (CFS) of probiotic (L. plantarum ATCC:8014) against P. aeruginosa ATCC: 27853was evaluated. Cultured medium of probiotic bacteria were separated by centrifuging at 15000 rpm. The antimicrobial effects CFS of L. plantarum was evaluated by well diffusion method. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined by micro dilution method according to CLSI 2006. Finally interaction between CFS and Amikacin, Gentamicin, Ciprofloxacin and Azithromycin against P. aeruginosa ATCC: 27853 were examined through checkerboard method and fractional inhibitory concentration (FIC) was determined. The results showed a significant effect by CFS on the P. aeruginosa. The MIC and MBC of CFS from L. plantarum were 62.5 ?lD ml and 125?lD ml. Using the FIC indices, synergistic interactions were observed in combination of CFS and antibiotics. FIC indices of CFS from L. plantarum and Gentamicin, and Azithromycin were 0.124 and 0.312 respectively showing synergism effect, while FIC indices of CFS and Amikacin and Ciprofloxacin were 1.6 and demonstrated indifference action. Our finding indicated that L. plantarum as probiotic bacteria have a significant inhibitory effect on the growth of Pseudomonas aeruginosa ATCC: 27853. The antimicrobial potency of this combination can be useful for designing and developing alternative therapeutic strategies again P. aeruginosa infections.

**Keywords :** Pseudomonas aeruginosa, Minimal inhibitory concentration (MIC)

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