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Revised anti-staphylococcal activity of conventional antibiotics in the presence of *Lactobacillus paraplantarum* cell free supernatant

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In view of the capability of *S. aureus* causing a wide array of infections ranging from localized skin infections to life threatening systemic infections and due to emerging drug resistant *S. aureus* strains (MRSA/ORSA/VISA), there is a need to explore other alternative options to manage such deadly strains. Use of probiotics is one such option as several probiotic strains have been reported to have anti-staphylococcal activity. In the present study, efficacy of antibiotics in the presence of probiotic cell free supernatant (CFS) against *S. aureus* strains was evaluated by radial/agar well diffusion assay as well as by minimum inhibitory concentration (MIC) determination. Out of the four probiotics used, CFS of *L. paraplantarum* revealed the maximum anti-staphylococcal activity. To use the probiotic/CFS in conjunction with conventional antibiotics against *S. aureus*, antibiogram of *S. aureus* as well as *L. paraplantarum* was determined. On the basis of resistance pattern of both, the two combinations (CFS/ampicillin and CFS/oxacillin) were selected. These two combinations were found to have synergistic/additive effect as per the fractional inhibitory concentration (FIC) index. It was inferred from the study, MICs of both the antibiotics in presence of CFS were reduced significantly. It is worth mentioning that the strains which were earlier resistant to oxacillin were rendered sensitive to it in the presence of CFS as per CLSI guidelines. It can be concluded from the study that CFS and ampicillin/oxacillin combination might help in rejuvenating the use of conventional anti-staphylococcal antibiotics for the treatment of multi-drug resistant strains.

Biography

Lavanya Rishi is currently pursuing her graduation in Medical Sciences (MBBS second year student) in Himalayan Institute of Medical Sciences, India. She has been a meritorious student at the Secondary and Senior Secondary level. Recently, she has been awarded short term studentship (STS-2015) by Indian Council of Medical Research, India to work on the project "Possible augmentation in the anti-staphylococcal activity of conventional antibiotics with probiotic cell free supernatant".

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