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A study on susceptibility to dental caries, & probiotic activity against the isolates among the leprosy patients

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Dental caries is one of the most common of all disorders which occurs as a co infection among leprosy patients. The organism responsible for the infection is *S.mutans* and *S.sorbinus*. In our present study occurrence of susceptibility to dental caries was found to be more common among leprosy patients, which clearly depicts the association of immune response with infection. Down regulation of immune response and personal cleanliness makes the leprosy patients susceptible for dental caries. Probiotics seems to be an alternative therapeutic tool to combat multi drug resistant strategies a serious threat to human community. Probiotics are microbial food supplements which beneficially influence the health of the host. The mechanism of inhibition of pathogenic bacteria probiotic microorganisms is mediated through the production of bacteriocins. Most of the gram positive bacteriocins are membrane active compounds, which increase the permeability of the cytoplasmic membrane. Bacteriocins are mostly active against the gram positive bacteria compared to the gram negative bacteria. Bacteriocin component act upon on the cell wall of the *S. mutans* leading to the disruption there by restricting the occurrence of the individuals' susceptible to dental caries. Probiotics can stimulate the non-specific immunity and modulate the cellular and humoral immune response. In the oral cavity, probiotics are able to form a biofilm that lines and hence protects the oral mucosa or tooth surface from the invading bacteria. Study attempts to screen the antimicrobial effect of probiotics against conventional antibiotic to treat dental caries.

Methodology: The study involves fifty volunteer leprosy patients who are inmate of Government Rehabilitation centre for leprosy, Pudhupatti, Madurai were selected for the study which includes 33 males and 17 females. Oral sample (saliva) was collected to detect the susceptibility of dental caries and the isolate was identified using direct microscopic examination Gram's staining, sugar fermentation etc. Further probiotic organism was isolated from curd and used to test the antimicrobial activity probiotic organism *Lactobacillus spp* against dental caries causing *S.mutans* and *S.sorbinus* using agar overlay method. Antibiotic susceptibility testing was done by Kirby-bauer method.

Result: Study document effective bacterial activity of probiotics over the conventional antibiotic which documented multi drug resistant strategies.

Conclusion: The study concludes that to overcome the strategies of drug resistance probiotics are the successful therapeutic tools against such microbial agents. Probiotics promote the immune response there by reducing the microbial burdenization of the host. We confirm the antimicrobial activity of the probiotic through 16SrRNA sequencing. Research need to be exploited for the commercialization of probiotics as an effective therapeutic tool against dental caries.

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