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Evaluating probiotic attributes of *Lactobacillus* sp isolated from plaque samples taken from female adults with dental caries

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Probiotics are defined as an adequate amount of live microorganisms able to confer health benefits on the host. Lactic acid bacteria are key microbial species which show probiotic properties. Among all lactic acid bacteria, genus *Lactobacillus* is considered as the main type of organism with probiotic properties. *Lactobacillus* species are identified as a causative agent of dental caries. Hence plaque samples from dental caries can be taken as a potential source of probiotic *Lactobacilli.* The aim of this study was to identify, evaluate and differentiate the probiotic attributes of *Lactobacillus* sp isolated from plaque samples taken from female adults with root and pit and fissure dental caries.

A total of thirteen (13) *Lactobacillus* isolates were obtained from pit and fissure dental caries plaque samples and a total of twenty one (21) *Lactobacillus* isolates were obtained from root dental caries plaque samples, after screening thirty (30) samples of each, which were identified based on their colony morphology and some biochemical characteristics including endospore formation, negative motility and catalase negativity. All *Lactobacillus* isolates were evaluated for their probiotic attributes including resistance to bile salt, resistance to low pH, DNase activity, haemolytic activity, antimicrobial activity against pathogens, *Pseudomonas aeruginosa*, *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumonia* and *Candida albicans,* and antibiotic resistance against nalidixic acid, ampicillin, norfloxacin and ciprofloxacin.

It was evident from the results that all isolates were unable to survive at 0.3% bile concentration except three isolates (RC 19.1, RC 20.1 and RC 26.2) from plaque samples of root dental caries patients. However the viable colony count decreased with time. None of the isolates were able to survive at low pH 3.0 and none of them were able to exhibit antimicrobial activity against the five pathogens used. All isolates were found to be DNase negative, and α haemolytic. Furthermore, all isolates were found to be sensitive to the antibiotics used in the study. In conclusion *Lactobacillus* species can be successfully isolated from plaque samples taken from dental caries. The percentage of *Lactobacillus* of plaque samples taken from root dental caries was higher (70%) than the *Lactobacillus* percentage of plaque samples taken from pit and fissure caries (43%). To be considered as probiotic bacteria, it is essential to obtain decided results for all probiotic tests. Hence the present study showed that none of the *Lactobacillus* isolates obtained from plaque samples of female adults with root and pit and fissure dental caries can be used as potential probiotic bacteria.