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In Vitro antibacterial activity of different *Salvadora persica* miswak extracts against isolated and genetically identified oral cavity pathogens

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Abstract

Despite the progress of the world, the dental caries disease is still widespread at a high rate in the world. Miswak which is derived from Arak plant (*Salvadora persica*) is used by Muslim people as a natural source for cleansing teeth to ensure oral and dental hygiene. This study was designed to evaluate the antimicrobial activity effects of ethanol, methanol, and ethanol/methanol extracts of miswak against three oral bacterial pathogens. The pathogens were isolated from the oral cavity persons and were identified on the bases of 16S rRNA gene amplification and sequence comparison with the 16S rRNA gene sequences available in GenBank database. Results of sequence Alignment and phylogenetic analysis identified the three isolates as *Staphylococcus aureus* strain KKU-020, *Enterococcus faecalis* strain KKU-021 and *Klebsiella pneumoniae* strain KKU-022. All miswak extracts showed extremely effects against the three pathogens. Maximum zone of inhibition (40.67±0.88mm) was observed against *E. faecalis* with ethanolic extract. Based on the significant effects of the miswak extracts against the oral cavity pathogens, our study therefore, recommended miswak to be used as a dental hygiene method to prevent tooth caries.

Keywords: ***Salvadora persica***, miswak, antibacterial activities, oral cavity pathogens, 16S rRNA gene sequences, Phylogenetic analysis.

Biography

Abd El-Latif Hesham graduated and got his M.Sc from Genetics department, Faculty of Agriculture, Assiut University, Egypt and his PhD degree from Chinese academy of Sciences in Microbial Genetics and Environmental Meta-Genome Biotechnology. He awarded postdoctoral studies from CAS-TWAS. His research experiences: in "Microbial Genetics", "Molecular Genetics", " Biofuels Biotechnology ", "Environmental Meta-genome Biotechnology", "Biodegradation & Bioremediation (PAHs and Rubber degradation)"; "Microbial community structure and diversity", "Wastewater treatment", "Medicinal plant extracts and antimicrobial activities". He expert in molecular biological techniques, including Clone library, RFLP and gene sequencing, phylogenetic analysis, florescent *in situ* hybridization (FISH), PCR-DGGE, MPN-PCR, reverse transcriptase PCR , and real time PCR (RT-PCR). He has published about 30 papers in reputed journals and serving as an editor in chief, editorial board member and reviewer of international reputed journals.

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