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Antibacterial effect of two herbal medicines: *Nigella sativa* and *Boswellia serrata* on the oral pathogen *Aggregatibacter actinomycetemcomitans*

Bitam Maraghehpour and Mina Khayamzadeh
Tehran University of Medical Sciences, Iran

Aggressive periodontitis is a type of periodontal diseases which treatment involves mechanical therapy and antibiotics. Since bacterial strains developed resistance against commonly used antibiotics and their side effects become critical in long term therapies, other alternatives have been postulated. There are several plants have been proved to provide antibacterial effect beside their other positive features. In this study, *Boswellia serrata* (BS) and *Nigella sativa* (NS) which is the scientific name for black cumin were analyzed to evaluate the antibacterial effect on *Aggregatibacter actinomycetemcomitans* (A.a) known as one of the most prominent oral pathogens contributing to cause aggressive periodontitis. Broth micro dilution method was utilized for obtaining minimum inhibitory concentration (MIC) of crude extract of BS and NS. In addition, the logarithm of colony forming units grown in fresh BHI bacterial culture was assessed. Three groups including BS+ (containing only BS), NS+ (containing only NS) and BS-NS- (control group) were defined. For each group the experiment was repeated 12 times. MIC of BS and NS were 512 µg/mL and 128 µg/mL, respectively. No growth was observed in our negative control group. The mean±SD of logarithm of CFU/mL for BS, NS and control group was 4.32±0.36, 3.61±0.3 and 5.57±0.19, respectively. ANOVA test represented notable difference (p values<0.0001) of these groups which was later confirmed by incorporating the post-hoc test of Tukey's HSD (all p values<0.0001). Both BS and NS have got anti-bacterial effect against A.a which should be considered as appropriate ingredient for oral hygiene products such as mouth wash.

bitamaraghehpour77@gmail.com