

Nicotiana Tabacum Essential Oil Extract From Cigarettes Products against Diverse Smokers Mouth Floral Isolates

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Abstract:

This study aimed to evaluate the bacterial diversity, and the antimicrobial potential of *Nicotiana tabacum* oil extracts against diverse Smokers Mouth Floral isolates. The oral microbiota of smokers is significantly impacted by tobacco use, which may increase the prevalence of pathogenic bacteria, potentially leading to oral health complications. Five (5) oral samples were collected from five smokers, and microbial analysis was carried out using standard microbiological techniques through the use of NA and MacConkey agar. Isolates were identified via cultural characteristics and through series of biochemical reactions. Antimicrobial activities of *Nicotiana tabacum* oil extracts were performed with varying concentrations (100 mg/mL, 50 mg/mL, 25 mg/mL, and 12.5 mg/mL) using agar well diffusion assay. The killing dynamics of *Nicotiana tabacum* oil extracts against isolated bacteria were done using UV spectrophotometer. Results showed CFUs ranging from 3.0×10^4 to 9.8×10^4 CFU/mL among the samples. This study identified several bacterial isolates from the oral flora of smokers, including *Enterococcus faecalis*, *Staphylococcus aureus*, *Lactobacillus lactis*, *Pediococcus acidilactici*, *Peptostreptococcus anaerobius*, *Stomatococcus mucilaginosus*, *Actinomyces bovis*, *Streptococcus agalactiae*, *Bifidobacterium bifidum*, and *Corynebacterium diphtheriae*. The oil extracts exhibited significant antibacterial activity, particularly at higher concentrations, with inhibition zones of up to 13.0 mm for *Staphylococcus aureus*. Killing time assays revealed a reduction in bacterial load, with optical density (OD) dropping to 0.000 by 48 hours for most isolates, demonstrating effective bacterial killing. *Nicotiana tabacum* oil extracts showed promising antibacterial properties against oral pathogens from smokers. These findings suggest potential applications of the extracts as adjuncts to oral health treatments for smokers, warranting further research into their molecular mechanisms and long-term efficacy.

Keyword:

Nicotiana Tabacum, essential oil Microbial Diversity.