

**ANTIBACTERIAL ACTIVITY OF SELECTED PLANT EXTRACTS AGAINST
AN ORAL ISOLATE OF *Acinetobacter baumannii***

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Acinetobacter baumannii, a multidrug-resistant Gram-negative bacterium, is increasingly recognised as an oral pathogen. With rising resistance to antibiotics, plant-derived alternatives are gaining attention. This study aimed to evaluate the antibacterial activity of root extracts of *Cocos nucifera*, *Areca catechu* and *Piper nigrum* plants individually, and their synergistic activity against *A. baumannii*. Dental plaque samples were collected after obtaining the consent from participants. Those samples were cultured in nutrient media, and pure colonies were isolated from the morphologies which appeared consistently across all the samples. The isolated bacterium was identified via 16S rRNA gene sequencing and subsequently used for Anti-Bacterial Sensitivity Testing (ABST) via the disk diffusion method. Crude plant extracts were prepared using methanol, and concentrated via rotary evaporation and subjected to ABST, individually and in combination (1:1:1 ratio) using the disk diffusion method. Two 0.2% chlorhexidine containing mouthwashes and distilled water were used as positive and negative controls, respectively. *Areca catechu* and *C. nucifera* extracts showed moderate inhibition of approximately 13 mm, whereas *P. nigrum* had no effect. The combination extract and chlorhexidine mouthwashes produced comparable inhibition zones of ~15 – 16 mm, with no statistically significant difference ($p > 0.05$). The antibacterial activity of the combined extracts did not significantly differ from the individual effects of *A. catechu* or *C. nucifera* ($p > 0.05$), suggesting that the combination of these plant extracts would not provide enhanced effectiveness over their individual application. In conclusion, both *A. catechu* and *C. nucifera* root extracts exhibited notable antibacterial activity against *A. baumannii*, individually and in combination, highlighting their potential as promising plant-based alternatives for combating *A. baumannii* infections.

Keywords: *Acinetobacter baumannii*, Antibacterial activity, Multidrug resistance, Oral pathogens, Plant extracts