

## **In Vitro Antibacterial Effect of Hydroalcoholic Extract of Lawsonia Inermis, Malva Sylvestris and Boswellia Serrata on Aggregatibacter Actinomycetemcomitans**

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**Abstract :** Background and Aim: Periodontal diseases are among the most common infectious diseases all around the world, even in developed countries. Considering the increased rate of microbial resistance to antibiotics and the chemical side effects of antibiotics and antiseptics used for the treatment of periodontal disease, there is a need for an alternative antimicrobial agent with fewer complications. Medicinal herbs have recently become popular as antimicrobial and preventive agents. This study aimed to assess the antibacterial effects of hydroalcoholic extracts of Lawsonia inermis, Malva sylvestris and Boswellia serrata on Aggregatibacter actinomycetemcomitans (*A. actinomycetemcomitans*). Materials and Methods: Hydroalcoholic extracts of the three medicinal plants were obtained by the maceration technique and *A. actinomycetemcomitans* was cultured. The antimicrobial efficacy of the three medicinal plants was compared with that of 0.2% chlorhexidine (CHX) according to the CLSI protocol using agar disc diffusion and broth microdilution techniques. All tests were repeated three times. Results: Hydroalcoholic extracts of all three plants had antimicrobial activity against *A. actinomycetemcomitans*. The minimum inhibitory concentration (MIC) of Lawsonia inermis, Malva sylvestris, and Boswellia serrata was 78.1, 156.2, and 1666 µg/mL with no significant difference between them. The MIC of CHX was 3.33 µg/mL, which was significantly higher than that of Boswellia serrata extract. Conclusion: Given that, further in vivo studies confirm other properties of these extracts and their safety in terms of cytotoxicity and mutagenicity, hydroalcoholic extracts of Lawsonia inermis and Malva sylvestris may be used in mouthwashes or local delivery systems to affect periodontal biofilm.

**Keywords :** actinobacillus actinomycetem comitans, lawsonia inermis, malva sylvestris, boswellia serrata

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