Conception and Preparation of an Antibacterial Gel Based on Essential Oils (Clove, Thyme and Sage)

Abdaoui Wissam
Associate professor, Department of life and natural sciences, University of 8th May 1945 Guelma

Tabet Mouna
Department of life and natural sciences, University of 8th May 1945 Guelma

Benouareth Djamel Eddine
Department of life and natural sciences, University of 8th May 1945 Guelma

Rebahi Feriel
Department of life and natural sciences, University of 8th May 1945 Guelma

Chaouech Amira
Department of life and natural sciences, University of 8th May 1945 Guelma

Tlidjani Nadra
Department of life and natural sciences, University of 8th May 1945 Guelma

Abstract:

Essential oils are extracted from many aromatic and medicinal plants, and are volatile, natural, complex compounds with strong odors that are formed by aromatic plants as secondary metabolites. The bioactive properties of essential oils are often determined by the main compounds they contain, which are used as antibacterial agents. The three plants we used in our study were thyme, clove and sage, whose essential oils are known for their powerful antibacterial activity.

The main aim of this study was to formulate an antibacterial gel based on the essential oils of these three plants and evaluate its antibacterial activity against the bacterial strains collected: (ATCC bacterial strains: Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa and Salmonella spp). Disk diffusion methods on solid agar media were used for sensitivity testing to essential oils and formulated gel.

According to the results obtained, the thyme and clove EOs tested showed a significant effects on all the strains tested, although five bacterial strains tested proved sensitive to our gel. The strongest activity was obtained against ATCC23 of staphylococcus aureus. Compared with the activity of ATBs, our formulated gel is proved as effective and had an antiseptic effect.

Keywords:

Essential oil, thyme, clove, sage, antibacterial gel, antibacterial activity.