

## Topical formulations using Portuguese aromatic plants for veterinary care: creams, gels or ointments?

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**Background:** The treatment of wounds comprises a significant portion of veterinary healthcare expenses. The PLANT-VET project is a research initiative aimed at developing a new topical product based on essential oils extracted from aromatic plants of the Portuguese flora, while evaluating their antimicrobial and anti-inflammatory effects on wound healing in companion animals [1]. Wounds and infections are painful and compromise quality of life in both human and veterinary medicine, yet current therapies are often costly, labor-intensive, and increasingly challenged by antibiotic resistance [2]. **Methods:** This project will assess various carriers and encapsulation techniques for incorporating essential oils into creams, gels or ointments. The final formulation will be selected based on galenic criteria and its biological properties, including antimicrobial, anti-inflammatory, and regenerative activities. A multidisciplinary team of health professionals, educators, and researchers specializing in pharmaceutical technology, natural resource valorization, and biological assessment is driving this effort. **Results:** Essential oils face major limitations due to their hydrophobic nature and high volatility, which cause them to vaporize quickly and degrade under harsh conditions severely limiting their practical use and shelf-life. However topical products like creams that utilize oil in water emulsions have emerged as a solution to these issues [3,4]. These formulations are effective, in encapsulating oils to prevent evaporation, preserve their ingredients during storage and reduce environmental impact. In addition, to this approach tailored to areas of application helps in delivering the substances where they are needed most effectively through improved absorption and regulated release to boost the treatments efficacy [4]. **Conclusions:** The development of a pilot batch of a low-cost, plant-based product for wound healing in veterinary medicine can offers minimal side effects and addresses the growing issue of antibiotic resistance. This work aligns with the *One Health* concept by balancing human, animal, and environmental health, and it presents a potentially innovative, sustainable solution [5] for improving wound treatment outcomes in companion animals.

**Keywords:** essential oils, wound healing, topical formulations, antimicrobial activity, One Health

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