



## Essential oils synergism in biocompound for treatment of cracks in diabetic patients' feet

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Essential oils are potentially active substances and many of these oils are extracted by steam distillation techniques (1). They are products with great therapeutic and pharmacological potential (2). The main constituents of essential oil of cloves (*Syzygium aromaticum*) identified by chromatography are eugenol and  $\beta$ -caryophyllene (3). Eugenol has antiviral, anti-ulcer, anesthetic, anti-inflammatory and antimicrobial properties, while  $\beta$ -caryophyllene reduces edema and is an anti-inflammatory (3). The essential oil of tea tree (*Melaleuca alternifolia*), or tea tree oil, has healing and anti-infectious properties (4). Its main constituents are the monoterpenes. The purpose of this study was to analyze the chemical constituents of "healing biocompound" given the results obtained in the treatment of cracks in the feet of diabetic patients. It is a product made from essential and carrier oils, registered on the health regulatory agency (ANVISA), with antiseptic and healing properties, and empowering and revitalizing the skin, produced by Magia da Mata Cosméticos Ltda. The diabetic foot is a common complication of diabetes mellitus, characterized by lesions caused by vascular and / or neurological changes (5). Study population: 47 diabetic patients type 2 volunteers, adults of both sexes, registered in the Association of Diabetics of Nova Friburgo, RJ (ADINF), which had cracks in the feet. They were divided into 2 groups: Study group - 25 patients treated with biocompound; Control group - 22 patients treated with 10% urea cream. Evaluation: weekly visits by 119 days, with a photograph of the lesions measured and assessment of complications, healing of fissures and therapeutic efficacy (decreased as the lesion, absence of complications - pain, bleeding, itching, and increase lesion areas). Results: Study group: 72% were cured and 28% showed improvement. All reported improved local pain, itching and swelling. Chromatographic analysis of essential oil of *Syzygium aromaticum*: main eugenol (84%) and  $\beta$ -caryophyllene (6%), components with important properties for the study (antimicrobial, anti-inflammatory, anesthetic and inhibiting edema); of essential oil of *Melaleuca alternifolia*: monoterpenes (42%) (anti-infective and analgesic); the biocompound: presence of these key components. The effectiveness of biocompound was possibly due to the presence of eugenol,  $\beta$ -caryophyllene and monoterpenes, properties whose combined acted to reduce the inflammatory process and allow healing of the lesions.

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