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ANTAGONISTIC ACTIVITIES OF KEFIGEL AND KERFIGEL PRODUCTS AGAINST *STAPHYLOCOCCUS AUREUS* ISOLATED FROM DIABETIC FOOT ULCERS

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Diabetic foot ulcers are often complicated by infection and among pathogens the Gram-positive *Staphylococcus aureus* is the most common isolated. Also concomitantly, the high prevalence of methicillin-resistant *S. aureus* (MRSA) was significant impact on successful treatment of infected foot ulcers. In this context, the purpose of the present study was to evaluate the antibacterial properties of Kefigel®, a natural product composed by nettle (*Urtica dioica* L), lavender (*Lavandula angustifolia* Mill) and kefir grains, which have been reported as to having antibacterial activity against several diseases. Here, antibacterial effect of Kefigel® and its components were investigated against 20 *S. aureus* isolates (10 MSSA and 10 MRSA) collected from several diabetic foot ulcers. To assess antibacterial activity, the disk diffusion assay method, minimum inhibitory concentration (MIC), minimal bacterial activity and effects on specific growth rate, were applied. Results showed that by diffusion method, only etanolic extracts of nettle and lavender showed antibacterial activity and their effects were mainly bacteriostatic. Compared to the antibiotic gentamicin, the nettle and lavender extracts showed an efficacy between 50 and 100% relative to the antibiotic. Generally, the MRSA isolates showed higher inhibition halos comparing MSSA isolates. In turns, Kefigel® (40mg.mL⁻¹) affects the specific growth rate of *S. aureus* isolates, since after incubation for 9h almost MSSA isolates growth were inhibited. A bactericide effect was observed only against one isolates MRSA. These findings indicate a potential use of Kefigel® as a natural product having an effective effect against *Staphylococcus aureus*. The topical use of this product for prevention of diabetic foot ulcers infections can be useful, however further investigation will be made, namely tests with high Kefigel® concentrations and synergetic effects with antibiotics.