TITLE: ANTIBACTERIAL POTENTIAL AND BIOFILME INHIBITION OF *Stryphnodendron coriaceum* EXTRACT AGAINST *Corynebacterium ulcerans*

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ABSTRACT:

Corynebacterium ulcerans is an emerging pathogen in Brazil and worldwide, associated with several clinical conditions including diphtheria. The study of antimicrobial activity of medicinal plants, such as *Stryphnodendron coriaceum* (barbatimão), seeks not only the scientific validation of popular therapeutic knowledge, as viable alternative methods for the treatment against such microorganisms. In view of this context, the objective was to evaluate the antibacterial activity of *S. coriaceum* extract, besides its action in the biofilm inhibition against *C. ulcerans*. The extract of the leaves of barbatimão was obtained by maceration with 70% ethanol. The antibacterial activity of extract was evaluated by disk diffusion method in Petri dish (1000-50µg/mL) and by the minimum inhibitory concentrations (MIC) and minimum bacteriological (MBC) by microdilution test, with six clinical isolates and one standard strain of *C. ulcerans*. The inhibition of *C. ulcerans* biofilm formation was tested on polystyrene surface in 96 well plates using MIC (500µg/mL). With the well diffusion test, no formation of inhibition halos was observed at the concentrations used. The MIC for the strains tested was 500µg/mL. It was not possible to determine MBC for the concentrations tested. In the evaluation of biofilm formation, by the Tukey test, it was observed that all the strains, statistically, are weak producers of biofilm in polystyrene in varied intensities, regardless of whether or not to express the tox gene, observing that only strain with significant interference ($p < 0.05$) in biofilm formation by EBH was 2649, with an increase in biofilm formation. It was also observed that, although not statistically significant, EBH interfered in the formation of biofilm or remained the same or near the same (strains 2590 and 2625), or increasing it (strains 2652 and 809). The barbatimão extract demonstrated antibacterial action against *C. ulcerans* suggesting its potential for therapeutic use, but the results of its interference in the biofilm formation open the questioning and the necessity of carrying out more test to confirm the viability of the extract.

Keywords: Biofilm inhibition, *Corynebacterium ulcerans*, crude extract, diphtheria.

Development Agency: