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IDENTIFICATION OF LISOLIPIN FROM ACTINOMYCETE OF CAATINGA BY TANDEM MASS SPECTROMETRY

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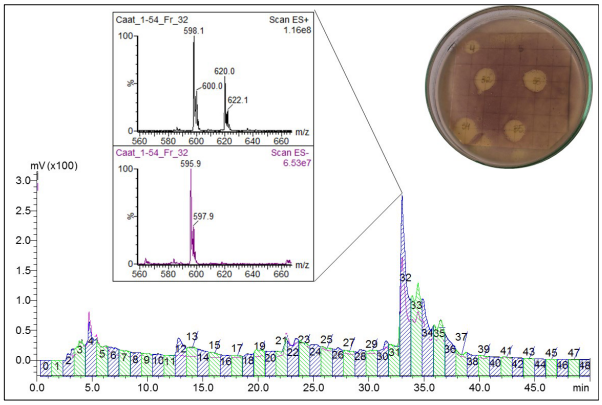
Abstract:

Microbial natural products are important source for the discovery of bioactive compounds; they have been considered a great option of inspiration for the development of pharmaceuticals, especially antibiotics, since the 1950s. In special, the actinomycetes are amazingly prolific in terms of the number of antibiotics they can produce, principally from *Streptomyces* genus. As a result of this, antibiotics derived from natural products have made great contributions to human health, but there is a need to identify promising new structures because resistant pathogens still pose a problem in the treatment of infectious diseases such as mastitis. Thus, the identification of new antibiotic compounds for the treatment of mastitis may be achieved by diving deeper into biological diversity, that is, by screening previously underexploited sources of secondary metabolites such as organisms from less studied taxa and habitats, as Caatinga biome. Furthermore, the chemodiversity afforded by individual producers warrants a closer analysis once a significant number of novel compounds have been discovered by means of improved strategies for detection and isolation. Thus, the use of sensitive and reproducible analytical techniques such as mass spectrometry (MS) is crucial in the process of dereplication. In this work, crude extracts from actinomycete isolated of cactus rhizosphere were tested against a bacterium that cause mastitis, using diffusion assays.



The actinomycete Caat 1-54 presente the best antimicrobial activity and was submitted to a scaled-up fermentation in Potato-Dextrose medium. The crude extract obtained from liquid-liquid extraction with ethyl acetate was fractionated and all fractions was bioassayed against *Staphylococcus aureus* isolated from milk of cows with mastitis. Then, the fractions were analyzed by MS and the power active fraction 32 showed the ions at *m/z* 598 and 596, which corresponding $[M+H]^+$ and $[M-H]^-$ species (597 u), and a characteristic isotope patterns of cloro presence. Therefore, the active compound was identified as lysolipin I, a lipophilic antibiotic from lysilipin class, based on MS/MS and NMR spectra.

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