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CHEMICAL PROFILING OF Inga laurina EXTRACTS AND EVALUATION OF THEIR ANTIBACTERIAL AND ANTIBIOFILM ACTIVITIES AGAINST RESISTANT Staphylococcus spp. STRAINS ISOLATES FROM NEONATE

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Healthcare-associated infections (HAIs) are a major public health concern, with *Staphylococcus* species standing out among the main etiological agents In this context, the leading Coagulase-Positive (CoPS) bacteria is *S. aureus*, whereas *S. haemolyticus* and *S. epidermidis* are the predominant Coagulase-Negative (CoNS) species, both able to induce sepsis in neonates, in addition to exhibit a strong ability to form biofilm. Furthermore, their ability to acquire antimicrobial resistance contributes significantly to increased morbidity and mortality. Therefore, it is necessary to investigate new therapeutic alternatives for the treatment of infections caused by these pathogens, such as from natural products sources. The genus *Inga,* as an example, is already recognized for their pharmacological activity. So, the present study aims to analyze the chemical profile of partitions (ethyl acetate (EtOAc), butanol and aqueous) obtained from *Inga laurina* (Fabaceae) crude extracts, derived from bark, pulp, seeds, and leaves. In addition, aim to investigate their antibacterial and antibiofilm potential against *Staphylococcus spp.* strains isolated from a neonatal Intensive Care Unit (ICU). For this purpose, *I. laurina* partitions were tested for antibacterial activity against 25 strains of *S. aureus*, *S. haemolyticus*, and *S. epidermidis*, using the macrodilution test at concentrations ranging from 128 to 512 µg/mL in order to establish their minimum inhibitory concentrations (MIC). Strains that demonstrated susceptibility were further evaluated for their biofilm formation in the presence of sub-MIC concentrations (<128 µg/mL) of the active partitions. The partitions were analyzed by HPLC-HRMS/MS and processed using MZmine 4.2. In parallel, feature-based molecular networking available on the GNPS2 platform and the software Sirius 5.8.6 were used to annotate substances present in the selected partitions. Among the evaluated, the leaf EtOAc partition (PAF) stood out, inhibiting approximately 88% of the tested *Staphylococcus spp.* Strains at xxx µg/mL. In the antibiofilm assay, the bark EtOAc partition (PAC) showed promising results against a *S. aureus* strain, with 95% inhibition at 128 µg/mL. From the HPLC-HRMS/MS analyses of the PAF, the following compounds were annotated: myricetin-3-*O*-hexoside, myricetin, myricetin-3-*O*-rhamnoside, myricetin-3-*O*-(2"-*O*-galloyl)-rhamnoside, quercetin-3-*O*-(2"-galloyl)-rhamnoside, and quercetin. *Inga laurina* demonstrated antibacterial and antibiofilm potential, particularly in the PAF. The chemical profile analysis enabled the annotation of flavonoids derivatives, which may be associated with this activity.

Keywords: *Antibacterial activity; Antibiofilm; Metabolic profile; Fabaceae; Inga laurina.*