



## ***ANALYSIS OF THE CHEMICAL, ANTIOXIDANT AND ANTI-INFLAMMATORY PROPERTIES OF *Swinglea glutinosa* (Bl.) Merr.***

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*Swinglea glutinosa* (Bl.) Merr. (Rutaceae) is a shrub native to the Philippines. In traditional medicine, it has been used to treat skin conditions and hemorrhages, while in Colombia it is used for joint inflammation. Despite its ethnobotanical use, the information on its chemical composition and biological properties is limited, which motivated the present study. The research focused on the characterization of polar metabolites from the pulp, peel, and leaves of *S. glutinosa*, as well as the evaluation of its antioxidant and anti-inflammatory potential *in vitro*. Extracts were obtained from the fruits and leaves using butanol and water. These extracts were characterized by RP-LC-ESI/MS-QTOF, and their metabolites were annotated using bioinformatics tools such as MS-DIAL, SIRIUS, and GNPS molecular network. The antioxidant activity was determined through Folin-Ciocalteu, DPPH, and ORAC assays. The anti-inflammatory activity was evaluated in LPS-stimulated RAW264.7 murine macrophages. The levels of inflammatory mediators such as PGE2, NO, IL-1 $\beta$ , IL-6, IL-10, and TNF- $\alpha$  were measured using specific kits and reagents. The results of the molecular characterization of the *S. glutinosa* extracts showed the presence of glycosylated flavonoids, alkaloids, and hydroxycarboxylic acids, with a particular abundance of apigenin and its isomers. The total phenol content in the pulp and peel extracts was 31,3 and 9,3 mg EAG/g Extract, respectively. Regarding antioxidant activity, the pulp and peel extracts inhibited the DPPH radical by 22,9% and 19,5% (at 150  $\mu$ g/mL). The ORAC method highlighted the pulp and leaf extracts, with values of 2410,16 and 2802,9  $\mu$ molTE/g. In the evaluation of anti-inflammatory activity, the butanolic fruit extracts inhibited the biosynthesis of PGE2, IL-1 $\beta$ , and IL-6 by more than 50% after 24 h. Additionally, it was observed that the extracts modulated the mRNA expression of target genes such as iNOS, IL-1 $\beta$ , and IL-6. Preliminary cytotoxicity assay results, in normal cells Hek-293 using the MTT method, indicate that the extracts do not contain lethal compounds.

**Keywords:** *Swinglea glutinosa*, LC-MS, anti-inflammatory mediators, ROS, phytochemistry, *In silico*.

