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ISOLATION AND CYTOTOXICITY ASSESSMENT OF FLAVONE C-GLYCOSIDES EXTRACTED FROM CORN STIGMAS (Zea mays L.)

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The recovery of agro-industrial waste is essential for the circular economy, supporting sustainable development and waste reduction. Corn stigmas (*Zea mays* L.), often discarded, are used in traditional medicine for their diuretic properties, and studies show that they are a promising source of flavonoids. This study aimed at the isolation and structural elucidation of corn stigma C-glycosides flavones and the evaluation of cytotoxicity in human lymphocytes. Corn stigmas were collected from establishments that sell corn-based foods in Anápolis, GO, Brazil (seeds Agroceres 1051 - SISGEM: A913311). The plant material was dried, ground, and then processed to isolate C-glycoside flavones, as described in patent BR1020240269403. The structural identification of the compounds was performed by one-dimensional and two-dimensional NMR ^{1}H and ^{13}C. The isolated compounds were tested for cytotoxicity in human lymphocyte by tripan blue exclusion assay (CAAE: 66860023.1.0000.8113), using primary cells isolated from healthy donors. The main flavones isolated and identified were maysin (2-(3,4-dihydroxyphenyl)-5,7-dihydroxy-6-[4-hydroxy-6-methyl-5-oxo-3-(3,4,5-trihydroxy-6-methyloxan-2-yl)oxyoxan-2-yl]chromen-4-one) and apimaysin (2,6-Anhydro-1-deoxy-5-O-(6-deoxy-alpha-L-mannopyranosyl)-6-C-(5,7-dihydroxy-2-(4-hydroxyphenyl)-4-oxo-4H-1-benzopyran-6-yl)-xylo-3-hexulose). After three hours of treatment, maysin and apimaysin showed cell viability above 90% across all tested concentrations (110-2100 µg/mL). These results suggest low cytotoxicity of the main flavones found in corn stigma. Additional studies are needed to verify safety for pharmacological or nutraceutical applications.

Keywords: *Circular economy, maysin, apimaysin, cytotoxicity, Zea mays.*