

UHPLC-UV-DAD-MS/MS METABOLOMIC STUDY OF DIFFERENT TYPES OF BANANA PEEL (*Musa ssp.*) AND ANTI-INFLAMMATORY ACTIVITY

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Abstract: Banana is one of the most widely used fruits in the world and the improper disposal of banana peel waste generates economic and environmental impacts. The use of banana peel waste and investigation of their nutraceutical and pharmacological properties for the sustainable use of banana is of great importance. Previous studies have identified the presence of potential anti-inflammatory compounds as the polyphenols [1]. Thus, the aim of this study is to identify the presence of anti-inflammatory substances in the peel of different types of banana (apple, dwarf, gold, silver and earth). The peels were dried and crushed to prepare the ethanol/water extracts (7: 3); 10 mg/mL on maceration through 24h. The extracts were partitioned with hexane and then filtered (0.45 μ m) and 5 μ L of this solution were injected into the UHPLC-UV-DAD-MS/MS. The samples were analyzed by UHPLC-UV-DAD-MS/MS, with a gradient elution performed in (A) Milli-Q water (0.1% formic acid) and (B) ACN in phenyl-hexyl reverse phase column; 0-5 min 2% B; 5-30 min 2%-20%B. The samples were ionized by electrospray (ESI), voltage: 4.5 kV, negative mode and triple quadrupole mass analyzer. It was possible the identification of flavonoids such as myricetin-3-rutinoside; quercetin-3/7-rutinoside-3/7-rhamnoside among others, based in their retention time and pattern of fragmentation [1]. The chromatographic data obtained showed that the peel of the gold banana it was the richest in these compounds. Therefore, the golden banana peel extract was chosen to *in vivo* anti-inflammatory evaluation. It was used 4 groups of 8 mice each: positive control (treatment with indomethacin, 0.5 mg/ear); negative control (vehicle); treatment with golden banana peel extract at concentrations of 1 mg/ear and 2 mg/ear; as it was approved by the ethical committee (652/2015 - CEUA-UNIFAL). The results (Figure 1) demonstrated significant anti-inflammatory activity of golden banana peel extract, with better results for the concentration of 1 mg/ear. Thus, the chemical composition and anti-inflammatory property of banana peel evidenced the potential pharmacological potential of banana peel waste. Acknowledgement: PIBIC/CNPq

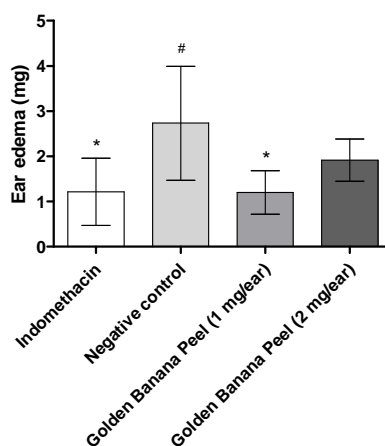


Figure 1: Anti-inflammatory evaluation. * $P < 0.05$ compared with negative control. # $P < 0.05$ compared with positive control (indomethacin).

References:

- [1] Rebello, L.P.G., Ramos, A.M., Pertuzatti, P.B., Barcia, M.T., Castillo-Muñoz, N. and Hermosín-Gutiérrez, I. 2014. Flour of banana (*Musa AAA*) peel as a source of antioxidant phenolic compounds. Food Res Int. 55: 397-403.