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Dahlia mignon as a source of soluble sugars and glycosilated flavonoids with bioactive properties

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The recent preoccupation with healthier living conditions has increased consumer interest in products that have beneficial effects. Edible flowers have been reported since ancient times in Asia, ancient Greece and Rome, medieval France, England and in the Middle East region as a healthy alternative. The aim of this study was to determine the individual profile of soluble sugars and glycosylated flavonoids in dahlia petals and in its infusion, and also to evaluate the bioactive properties. The soluble sugars were determined by high performance liquid chromatography coupled to a refractive index detector (HPLC-RI), while the phenolic profile was determined by HPLC-DAD-ESI/MSn. Furthermore, the bioactive properties were evaluated through the antioxidant, antibacterial and antiproliferative activities. Fructose, glucose and sucrose were found in the petals and infusions, being fructose the main sugar present in petals (10.24 ± 0.62 g/100 g dw), and in the infusion (0.19 ± 0.02 mg/100 mL). The phenolic profile of dahlia sample presented a total of 21 compounds, being the main molecule naringenin-3-*O*-glucoside. Dahlia petals presented a higher antioxidant activity than the infusion for DPPH scavenging activity (0.63 ± 0.01 and 1.17 ± 0.05 mg/mL, respectively) and β-carotene bleaching inhibition (0.48 ± 0.02 and 2.01 ± 0.07 mg/mL, respectively), while for the reducing power the infusion revealed a higher potential (1.33 ± 0.07 and 0.799 ± 0.001 mg/mL, respectively). Dahlia petals and infusion gave the lowest GI_{50} values against HeLa (223.65 ± 2.78 μg/mL) and MCF-7 (361.99 ± 28.83 μg/mL, 303.27 ± 26.13 μg/mL respectively) cell lines. The samples were active against most of the tested microorganisms, however, the samples were found to be more active against Gram-positive bacteria with MICs ranging from 2.5 to 5 mg/mL. These results confirm the potential of *Dahlia mignon* as a source of bioactive compounds with interest for the pharmaceutical and food industries.

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