

Documents

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Abstract

Crossopteryx febrifuga (Rubiaceae) is a plant widely used in traditional African medicine to treat trypanosomiasis. The aim of our study was to evaluate the antitrypanosomal activity of *C. febrifuga* extracts and to identify the compounds responsible for this activity. We prepared 4 extracts by successive maceration of plant leaf powder in n-hexane, dichloromethane, methanol and water. The antitrypanosomal activity of the extracts was assessed on *Trypanosoma brucei* brucei and their selectivity on *Leishmania mexicana mexicana* and human non cancer WI38 fibroblast cells. The dichloromethane extract, the most antitrypanosomal (IC₅₀ of 9.3 ± 0.8 µg/mL) was fractionated on an Open Column Chromatography to give 14 fractions. Fractions 6–9 were the most active with an IC₅₀ ranging from 1.3 to 2.1 µg/mL. All fractions were analyzed by UPLC–ZenoTOFHRMS, followed by manual dereplication of metabolites detected in the most active fractions. Manual dereplication was aided by the Molecular Network (MN) and SIRIUS. Metabolic profiling of fractions 6–9 has enabled us to identify 33 compounds, most of which were reported for the first time in *C. febrifuga*. These include buddlenol C (6), naringenin (7), maslinic acid (22), corosolic acid or isomer (24), asperphenamate (25), hydroxyoctadecenoic acid (29), sumaresinolic acid or isomer I and II (30 and 31), glycyrrhetic acid (32) and oleanolic acid (36). The bioactivity-based approach identified maslinic (22), corosolic (24), and oleanolic (36) acids as linked to the antitrypanosomal activity. The data obtained support the traditional use of *C. febrifuga* in the traditional treatment of trypanosomiasis. Further studies are required to verify the activity observed in vivo. © 2024

Author Keywords

Antitrypanosomal activity; *Crossopteryx febrifuga*; Molecular network; SIRIUS; Traditional medicine; Trypanocidal compounds

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