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CHARACTERISATION OF A SUGAR FRACTION FROM *SARCOCEPHALUS LATIFOLIUS* STEM BARK EXTRACT

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As part of our phytochemical research on medicinal plants from Guinea-Bissau, we have investigated the carbohydrate content of an ethanolic extract of *Sarcocephalus latifolius* (Rubiaceae) stem bark.¹ The extract (110 g) was fractionated on a celite column and further submitted to successive Si gel and RP-18 column chromatography to afford a sugar fraction (3.7 g), whose composition was analysed by GC after derivatization of the free sugars to alditol acetates. The main products obtained were D-mannitol and D-glucitol. However, these derivatives didn't allowed the identification of the natural products, once D-mannitol could result from D-fructose and/or D-mannose, and D-glucitol could result from D-fructose and/or D-glucose, or D-gulose. The structures, anomeric configurations and conformations of the sugars were determined on the basis of NMR data (¹H, ¹³C, DEPT, COSY, HMQC, HMBC, NOESY) of the corresponding benzoylated derivatives, which were separated by normal (Lichrospher Si 60) and reversed phase (Lichrospher 100 RP18) semipreparative HPLC, equipped with a diode array detector.

The main constituent was D-fructose, which was characterised in the forms of 1,2,3,4,6-penta-*O*-benzoyl- α -D-fructofuranose, 1,2,3,4,6-penta-*O*-benzoyl- β -D-fructofuranose, 1,2,3,4,5-penta-*O*-benzoyl- β -D-fructopyranose, and 1,3,4,5-tetra-*O*-benzoyl- β -D-fructopyranose, formed by acylation of the sugar fraction with benzoyl chloride at 0 °C. The α - and β -D-pyranose forms of glucose, xylose, and arabinose perbenzoates, D-glycerol and D-erythriol perbenzoates, as well as an inseparable mixture of α (18%) and β (82%) forms of methyl 1,3,4,6-tetra-*O*-benzoyl-D-fructofuranoside were also isolated from the derivatized sugar fraction and fully characterised. To our knowledge this is the first reported occurrence of methyl 1,3,4,6-tetra-*O*-benzoyl-D-fructofuranoside as a natural product, although a synthetic analogue has been previously described in literature².

References

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