

ANTHRACENE DERIVATIVES FROM *RUMEX ABYSSINICUS*

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Examination of *Rumex abyssinicus* Jacq. (Polygonaceae), a plant used in traditional medicine as purgative and hypoglycemic agent, is reported.

EXPERIMENTAL

PLANT MATERIAL.—The tubers of *R. abyssinicus* were collected 160 km north of Addis Ababa near Debre Behran, in January 1983, and identified by Ato Zerihun Woldu of the National Herbarium, Addis Ababa University, Ethiopia, where a voucher specimen is deposited.

EXTRACTION AND IDENTIFICATION.—The combined CHCl_3 and Me_2CO extracts (20.5 g) of powdered tubers (200 g) of the plant afforded by extended cc chrysophanol (1%), physcion (1%), emodin (10%), palmidin C (emodin-chrysophanol bianthrone, 2%), chrysophanol-8- β -D-glucoside (3%), and emodin-8- β -D-glucoside (3%), which were identified on the basis of their physical and spectral data.

The anthraquinones were confirmed by authentic sample comparison. Palmidin C, $\text{C}_{30}\text{H}_{22}\text{O}_7$, mp 258-259°, on FeCl_3 oxidation (1) gave emodin and chrysophanol. It has been previously isolated only as the glucoside (1,2). Chrysophanol-8- β -D-glucoside, mp 240-242° [lit. (2) mp 245-246°], and emodin-8- β -D-glucoside, mp 190-191° [lit. (2) mp 190-191°] on acid hydrolysis gave, in addition to β -D-glucose, chrysophanol and emodin, respectively.

Full details of the isolation and identification are available on request to the senior author.

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ISOLATION OF THE CONSTITUENTS OF THE ROOT-BARK
OF *GUETTARDA PLATYPODA*

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The root bark of *Guettarda platypoda* DC. (Rubiaceae), a shrub that grows near the coastal plain of northeastern Brazil and is used in popular medicine as a febrifuge and during the puerperal period (1), showed considerable anti-inflammatory activity in our laboratory (2). The CHCl_3 -soluble part of the non-basic fraction of the ethanolic extract of the root bark, which retained the anti-inflammatory activity, yielded quinovic acid, rotundic acid, and β -sitosterol, whereas the CHCl_3 -insoluble part afforded a saponin, mp 220-222°, which upon acid hydrolysis gave quinovic acid. The physical properties of the saponin appear to be different from those of quinovin A, B, and C (3).

EXPERIMENTAL

PLANT MATERIAL.—The plant material used in this study was collected from the interior of the State of Paraíba in February 1980, and the voucher is deposited at the LPX Herbarium of the Universidade Federal da Paraíba, João Pessoa, Paraíba, Brazil.

EXTRACTION AND ISOLATION OF THE COMPOUNDS.—The dried ethanolic extract of the defatted root bark (1 kg) of *G. platypoda* was treated with dilute H_2SO_4 and filtered. The acid aqueous filtrate was treated in the usual way to give a basic fraction, which was put aside for further treatment. The residue (150

g) was fractionated into a CHCl_3 -soluble part (7.2 g) and a CHCl_3 -insoluble residue. The former yielded β -sitosterol (60 mg); quinovic acid (20 mg), mp 299-301°; and rotundic acid (25 mg), mp 268-270°. Part of the CHCl_3 -insoluble fraction (25 g) afforded a white material which, after several recrystallizations, gave the saponin (150 mg), mp 220-222°. This saponin, upon hydrolysis with 10% HCl for 4 h followed by the usual work up, gave quinovic acid. The sugar was not identified.

The identification of the compounds was made by direct comparison with authentic samples or by comparison of the physical data with those published in the literature (3-5). Full details of the isolation and identification of the compounds are available on request to the senior author.

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FLAVONOL 3-O-METHYL ETHERS FROM *SOLANUM PUBESCENS*

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Besides alkaloids, flavonoids form the other major group of compounds reported from the *Solanum* genus. The flavonoid pattern in the Solanaceae is mainly based on kaempferol and quercetin with rare occurrence of apigenin and luteolin (1). We recently reported the isolation of a novel myricetin derivative (2), and we now report the isolation of some methyl ethers of quercetin and kaempferol from the leaves of *Solanum pubescens* Willd. All the methyl ethers were found to be 3-methyl ethers with a free 5-hydroxyl group.

Except for quercetin-3,7,4'-trimethyl ether and quercetin-3,3'-dimethyl ether, which were reported from *Nicotiana tabacum* (3) and *Physalis angulata* (4), respectively, all the other methyl ethers are being reported here for the first time from the Solanaceae.

The isolation of flavonol-methyl ethers was reported only once before from the Solanaceae (5). The current report is thus of taxonomic importance, indicating the possibility of further existence of 3-O-methyl ethers in the Solanaceae. The occurrence of eight methoxylated flavonols from *S. pubescens* may be attributed to the presence of secretory structures as mentioned earlier (6). The observation that the co-occurrence of parent flavonols with their O-methyl derivatives, as previously known in angiosperms, can also be extended to the Solanaceae based on this investigation. Also, the isolation of the 3-O-glucoside and 3-O-rutinoside of kaempferol is in support of the previous report of abundant occurrence of these glycosides in the Solanaceae.

EXPERIMENTAL

PLANT MATERIAL.—*S. pubescens* was collected near Nagarjuna Sagar, (Andhra Pradesh), India, in 1983. Vouchers are deposited in the Nagarjuna University Herbarium (No. NUH.NSP001). The powdered, air-dried leaves (2.5 kg) were successively extracted with *n*-hexane and MeOH.

ISOLATION OF FLAVONOIDS.—The concentrated hexane extract was chromatographed over silica gel eluting with hexane, hexane- C_6H_6 mixtures. The eluates from different fractions on preparative tlc developed with CHCl_3 -MeOH (99:1) yielded kaempferol-3,7,4'-trimethyl ether (300 mg, Rf: 0.78),