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ANTHRAQUINONE RHAMNOSIDES FROM *CASSIA JAVANICA* ROOT BARK

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Key Word Index—*Cassia javanica*; Leguminosae; root bark; anthraquinone pigments; emodin 8-rhamnoside; 5-hydroxyemodin 8-rhamnoside.

Two anthraquinones and their glycosides have been isolated from the root bark of *Cassia javanica*. The aglycones were identified as emodin and 5-hydroxyemodin by mp, mmp, colour reactions and IR, UV, NMR and mass spectral data. These compounds have been reported from many plant sources [1, 2].

The other two pigments (**1**, **2**) gave characteristic colour reactions of hydroxyanthraquinones and on acid hydrolysis, gave emodin and 5-hydroxyemodin respectively together with rhamnose. The attachment of the sugar moiety at position-8 in both cases was established by colour reactions [3] and UV spectra [4]. Both glycosides consumed 2 mol of periodate per mol liberating one mol of formic acid showing that the sugar is in the pyranose form. Hydrolysis of the glycosides by diastase indicated the α-nature of sugar linkage in both cases. On the basis of these results, the glycosides are 1,6-dihydroxy-3-methylanthraquinone 8-*O*-α-L-rhamnopyranoside (**1**) and 1,5,6-trihydroxy-3-methylanthraquinone 8-*O*-α-L-rhamnopyranoside (**2**). These glycosides have not been reported earlier from any plant source.

EXPERIMENTAL

Acetone-extracted root bark of *Cassia javanica* was extracted with hot EtOH. The conc extract was diluted with H_2O giving an aq. soln (fraction I) and coloured residue (fraction II).

Fraction (I) on extraction with EtOAc and chromatography over Si gel with EtOAc gave the glycoside **1**, mp 200(d.). Further elution with EtOAc–MeOH (1:1) gave glycoside (**2**), mp 310°.

Compound (**1**). IR ν_{max}^{KBr} cm^{-1}: 3380, 2900, 1670, 1620, 1595, 1470, 1320, 1100, 1065, 1035, 830 and 770. λ_{max}^{EtOH} nm: 220, 280 and 415. *Acetate* (Py/Ac_2O), colourless plates, mp 185°. ^1H NMR (60 Hz, $CDCl_3$) δ: 7.28 (*br*, 1-H, C-2), 7.95 (*br*, 1-H, C-4), 7.75 (*d*, 1-H, C-5), 7.38 (*d*, 1-H, C-7), 2.45 (C-CH_3), 2.30 (*s*, —$COCH_3$), 5.10 (H-1, rhamnosyl) and 3.10–5.10 (*m*, 5 sugar protons), 0.95 (CH_3 of rhamnosyl).

Compound (**2**). IR ν_{max}^{KBr} cm^{-1}: 3420, 3300, 2920, 1640, 1550, 1475, 1450, 1375, 1360, 1300, 1230, 1220, 1100, 1030, 990, 890, 870, 835 and 770. λ_{max}^{EtOH} nm: 235, 255, 300 and 470. *Acetate* (**2**) colourless crystals, mp 130°. ^1H NMR (60 Hz, $CDCl_3$) :δ 7.25 (*br*, 1-H, C-2), 7.75 (*br*, 1-H, C-4), 7.00 (*s*, 1-H, C-7), 2.47 (C—CH_3), 2.35 (—$COCH_3$), 5.15 (H-1 rhamnosyl), 3.00–5.15 (*m*, 5 protons of rhamnose) and 0.90 (CH_3 of rhamnose).

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