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SHORT COMMUNICATION

CONSTITUENTS OF *BRIDELIA MICRANTHA*

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Abstract—The compounds friedelin, taraxerone, epifriedelinol, taraxerol, gallic acid and ellagic acid have been isolated from *Bridelia micrantha*. The presence of leucodelphinidin and caffeic acid was also indicated.

Plant. *Bridelia micrantha* Baill.—Euphorbiaceae.

Source. Ifafa, Natal South Coast, South Africa.

Identification. NH51872, Natal Herbarium, Durban.

Previous work. Bark[1] and leaf[2] constituents of sister species *B. stipularis*.

Bark. Of the fifteen constituents shown to be present by TLC in the hexane extract, the four major components were identified as taraxerone, friedelin, taraxerol and epifriedelinol. Gallic acid and ellagic acid were isolated as the major constituents from the ether and acetone extracts. The anthocyanidin, delphinidin, was characterized in the hot HCl extract of fresh bark. Since cold mineral acid treatment of the fresh bark did not give rise to coloured flavylium salts, delphinidin must have been formed from leucodelphinidin or related compounds,[3] the presence of such substances being indicated by a positive vanillin test.[4]

Wood. Taraxerol and friedelin were identified as the major constituents of the hexane extract. Taraxerone and friedelin were completely absent. The major constituents of the ether and acetone extracts were gallic acid and ellagic acid respectively.

Leaves. The anthocyanidin delphinidin was identified in the hot acid extract of fresh leaves and the presence of caffeic acid was indicated.

EXPERIMENTAL

Taraxerone $C_{30}H_{48}O$. Found: m.p. 238–240°; $[\alpha]_D^{23}$ +9°, $CHCl_3$; M^+ 424; C, 84·7; H, 11·5; i.r. and m.s.[5] identical to those of authentic taraxerone; sodium reduction in isopropanol to taraxerol, m.p. 278–280°. Required: m.p. 242–244°;[6] [α] +11°, $CHCl_3$;[6] M^+ 424; C, 84·8; H, 11·4.

Friedelin $C_{30}H_{50}O$. Found: m.p. 262·5°; $[\alpha]_D^{23}$ −26°, $CHCl_3$; M^+ 426; C, 84·4; H, 11·9; i.r. and m.s.[7] identical to those of authentic friedelin; $LiAlH_4$ reduction to epifriedelinol, m.p. 279–280°; oxime, m.p. 293–295°. Required: m.p. 262–263°;[6] [α] −29°;[5] M^+ 426; C, 84·4; H, 11·8; oxime, m.p. 290–294°.[6]

Epifriedelinol $C_{30}H_{52}O$. Found: m.p. 281–283°; $[\alpha]_D^{23}$ +22°, $CHCl_3$; C, 84·1; H, 12·3; i.r. identical to that of authentic epifriedelinol; oxidation to friedelin, m.p. 258–260°; acetate, m.p. 290–291°. Required: m.p 278–280°;[6] [α] +23°, $CHCl_3$;[6] C, 84·0; H, 12·2; acetate, m.p. 290–294°.[6]

[1] B. N. GHOSH and P. SENGUPTA, *J. Indian Chem. Soc.* **40**, 247 (1963).
[2] K. S. MADHAVAN PILAI and P. V. NAIR, *Chem. Abs.* **47**, 7526d (1953).
[3] T. A. GEISSMAN, *The Chemistry of Flavonoid Compounds*, p. 217. Pergamon Press, London (1962).
[4] E. C. BATE-SMITH, *Biochem. J.* **58**, 126 (1954).
[5] C. DJERASSI, *Pure Appl. Chem.* **6**, 575 (1962).
[6] G. HARRIS, *Dictionary of Organic Compounds*. Eyre and Spottiswoode, London (1965).
[7] H. BUDZIKIEWICZ, J. M. WILSON and C. DJERASSI, *J. Am. Chem. Soc.* **85**, 3688 (1963).

Taraxerol $C_{30}H_{50}O$. Found: m.p. 279–280°; $[\alpha]^{23}$ 0°, $CHCl_3$; C, 84·4; H, 12·0; i.r. identical to that of authentic taraxerol; acetate, m.p. 305–306°. Required: m.p. 282–283°;[6] $[\alpha]$ 0°, $CHCl_3$;[6] C, 84·4; H, 11·8; acetate, m.p. 303–305°.[6]

Ellagic acid. Found: m.p. 360° dec.; tetraacetate, m.p. 337–339°; ellagorubin, m.p. 213–215°; i.r. identical to that of authentic ellagic acid. Required: m.p. above 360°;[6] tetraacetate, m.p. 343–346°;[6] ellagorubin, m.p. 214–215°.[6]

Gallic acid. Found: m.p. 235–240°; i.r. identical to that of authentic gallic acid; co-chromatography. Required: m.p. 235–240°.[6]

Delphinidin. Found: λ_{max} (MeOH–HCl), 548 nm; $\Delta\lambda^{AlCl_3}$ +27 nm; co-chromatography. Required: λ_{max} (MeOH–HCl), 546 nm; $\Delta\lambda^{AlCl_3}$ +23 nm.[8]

Caffeic acid. Co-chromatography.

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[8] J. B. HARBORNE, *Biochem. J.* 70, 22 (1958).