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SHORT COMMUNICATION

TERPENOIDS OF NIGERIAN *TERMINALIA* SPECIES*

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RECENTLY, we reported the isolation of terminolic acid[1] from the ether extracts of the heartwoods of *Terminalia laxiflora*, *T. avicennioides* and *T. glaucescens*[2] (Combretaceae), as well as traces of a polyhydroxy monocarboxylic acid $C_{31}H_{48}O_6$ from *T. laxiflora* and *T. glaucescens*.

We now report the isolation of terminolic acid from the ether extracts of the heartwoods of *T. catappa* and *T. macroptera*; "β"-sitosterol[1,2] and "β"-sitosteryl palmitate[2,3] from the petrol extracts of the heartwood and stem-bark of *T. catappa*; "β"-sitosterol from the heartwood of *T. superba*; ellagic acid;[2,4] trimethylellagic acids[2,5] from the ether extracts, as well as tetramethylellagic acid[1,2] from the petrol extracts of *T. ivorensis* and *T. macroptera* heartwoods; terminolic, ellagic and trimethylellagic acids from the ether extract and tetramethylellagic acid from the petrol extract of the rootlets of *T. glaucescens* and "β"-sitosteryl palmitate from the petrol extracts of the leaves and fruits of *T. laxiflora* and *T. glaucescens*.

The diisopropylether extracts of the heartwoods of *T. catappa*, *T. macroptera* and *T. ivorensis* furnished the following new 31-carbon atom skeleton triterpenes isolated as their methyl esters on chromatography (Merck silica gel; ether) and crystallization (ether).

From *T. catappa*, the methyl ester had m.p. 120–125°; $[\alpha]_D^{22}$ +37·4°; ν_{max}, 3400, 1725 cm^{-1}; λ_{max}, 225 mμ (ε 2900); NMR, τ 6·4; mol. wt. 532 (m.s.). (Found: C, 71·4; H, 10·0; OCH_3, 6·25%; $C_{32}H_{52}O_6$ required: C, 72·1; H, 9·8; OCH_3, 5·8%.) Triacetate, m.p. 98–102°; ν_{max}, 3450 cm^{-1}. (Found: C, 70·1; H, 8·9%. $C_{38}H_{58}O_9$ required: C, 69·3; H, 8·9%.) Tetra-acetate, m.p. 84–88°. (Found: C, 68·8; H, 8·3%. $C_{40}H_{60}O_{10}$ required: C, 68·55; H, 8·6%.)

From *T. macroptera*, the methyl ester had m.p. 140–149°; $[\alpha]_D^{22}$ +9·8°; mass 560; τ 6·1, 6·38; ν_{max}, 3,400, 1725, 1585 cm^{-1}; λ_{max}, 225 mμ (ε 4700) and 268 mμ (ε 4500). (Found: C, 70·5; H, 9·36; OCH_3, 11·1%. $C_{33}H_{52}O_7$ required: C, 7·07; H, 9·35; 2-OCH_3 11·1%.) Triacetate, m.p. 121–125°; ν_{max}, 3450 cm^{-1}. (Found: C, 68·3: H, 8·8%. $C_{39}H_{58}O_{10}$ required: C, 68·2; H, 8·5%.) Tetra-acetate had m.p. 100–105°. (Found: C, 67·9; H, 8·9%. $C_{41}H_{60}O_{11}$ required: C, 67·6; H, 8·2%.)

T. ivorensis yielded a methyl ester, m.p. 132–135°; $[\alpha]_D^{22}$ +22·34°; mass 532; ν_{max}, 3400, 1725 cm^{-1}; λ_{max}, 225 mμ (ε 2650) and 263 mμ (ε 1100); NMR, τ 6·38. (Found: C, 72·3;

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H, 10·2; OCH_3, 6·4%. $C_{32}H_{52}O_6$ required: C, 72·1; H, 9·8; OCH_3, 5·8%.) Triacetate, m.p. 115–118°; ν_{max}, 3450 cm^{-1}. (Found: C, 69·7; H, 8·8%. $C_{38}H_{58}O_9$ required: C, 69·3; H, 8·9%.) Tetra-acetate had m.p. 98–102°. (Found: C, 68·7; H, 9·0%. $C_{40}H_{60}O_{10}$ required: C, 68·55; H, 8·6%.)

In conclusion, the Et_2O extract of the root-barks of *T. laxiflora*, *T. avicennioides* and *T. glaucescens* furnished, in addition to "β"-sitosteryl palmitate and terminolic acid, a neutral compound, m.p. 297–300°; ν_{max}, 3400, 1625, 1170 and 800 cm^{-1}. (Found: C, 71·8; H, 10·8; $C_{28}H_{50}O_5$ required: C, 72·1; H, 10·8%.) The acetate had m.p. 166–168°, and NMR signals at τ 7·93, 7·97 and 8·0. (Found: C, 68·9; H, 9·6%. $C_{34}H_{56}O_8$ required: C, 68·9; H, 9·5%.)