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ARALIACEAE

RUTIN FROM *TETRAPLASANDRA MEIANDRA*

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Plant. Tetraplasandra meiandra, variety *mauiensis*, Sherff.

Source. Collected by S. Sohmer, Department of Botany, University of Hawaii. *Tetraplasandra* is described as a genus of about 22 known species, all but three (namely *T. koordesii*, *T. paucidens* and *T. phillipinensis*) belonging to the Hawaiian islands.[1]

Identification of rutin. The leaves were extracted with EtOH which on conc. gave a copious pale yellow precipitate which was washed with chloroform (1·6% of the leaf material). It gave, on acid hydrolysis, quercetin and equal amounts of glucose and rhamnose. Its identity as rutin was confirmed by co-chromatography and u.v. spectroscopy.

[1] E. E. SHERFF, *Field. Botany* **29**, 49 (1955).

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BETULACEAE

CHEMICAL EXAMINATION OF THE BARKS AND HEARTWOODS OF *BETULA* SPECIES OF AMERICAN ORIGIN

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Plants. Betula papyrifera, Betula lenta and *Betula alleghaniensis.*

Previous work. A variety of triterpenes were isolated from other species.[1–4]

Present work. Light petroleum, Et_2O, acetone and EtOH were used in succession as the solvents for extraction. The individual components were separated by repeated chromatography over a column of SiO_2 and identified through derivatives and by comparison with authentic samples. The terpenoid and steroid components were obtained from light

[1] K. HEJNO, V. JAROLIM and F. SORM, *Coll. Czech. Chem. Commun.* **30**, 1009 (1965).
[2] H. RIMPLER, H. KUHN and CH. LEUCKERT, *Arch. Pharm.* **299**, 422 (1966).
[3] BENGT O. LINDGREN and CARL MAGNUS SVAHN, *Acta Chem. Scand.* **20**, 1720 (1966).
[4] G. A. TOLSTIKOV, M. I. GORYAEV, KIM KHYA OK and R. A. KHEGAI, *Zh. Prikl. Khim.* **40**, 920 (1967); *Chem. Abstr.* **67**, 54279 (1967).

petroleum, ether and acetone extracts while a proanthocyanidin was obtained from acetone and alcohol extracts. The latter was purified by repeated fractional precipitation and identified through its flavylium salt.

Betula papyrifera. Bark: betulin (1·5%), lupeol, acetyl oleanolic acid, betulinic acid, oleanolic acid, β-sitosterol and procyanidin (in low yield). Heartwood: betulin, lupeol, β-sitosterol and procyanidin (yield very much less than that from the bark). The results revealed close resemblance to the Indian wood *Betula utilis*.[5] These two woods had similar physical appearance though the outer barks had minor differences.

Betula lenta. Bark: lupeol (0·15%), betulin (0·05%); methyl salicylate, β-sitosterol, lupenone and procyanidin in comparatively low yield. Heartwood: lupeol, betulin, methyl salicylate, β-sitosterol, β-sitosterol-β-D-glucoside, acetyl methyl betulinate and procyanidin (low yield).

Betula alleghaniensis. Bark: lupenone (0·08%); betulin, lupeol and procyanidin in traces. Heartwood: Betulin, lupeol, β-sitosterol, β-sitosterol-β-D-glucoside, acetyl methyl betulinate and procyanidin (low yield).

Conclusion. The occurrence of betulin and lupeol seems to be common among the *Betula* species. The bark of *B. papyrifera* is a rich source for betulin. The presence of methyl salicylate is characteristic of *B. lenta*. The rare occurrence of acetyl methyl betulinate has been noted in two of the three species examined by us. The only earlier report about this compound is by Paasonen[6] who obtained it from the moist saw dust extractives of birch trees.

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[5] V. M. CHARI, S. NEELAKANTAN and T. R. SESHADRI, *Indian J. Chem.* **6**, 231 (1968).
[6] PAULI K. PAASONEN, *Paperi Puu* **49**, 3 (1967). *Chem. Abstr.* **66**, 77129 (1967).

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CELASTRACEAE

CONSTITUENTS OF *EUONYMOUS EUROPEAS*

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A STUDY of *Euonymous europeas* has shown the presence of lipids, zeaxanthin, kaempferol and sugars in the aril of the seed capsules.

The air dried aril of ripened seeds of *Euonymous europeas* was extracted with boiling etrol (b.p. 60–80°). The concentrated extract was column chromatographed on alumina pd developed with petrol. The colourless elute, on concentrating to an oil (20%), was udged to be mainly triglyceride (TLC) and found (GLC of the methyl esters) to be mainly a mixture of the following compositon: 16:0, 19·3%; 16:1, 8·4%; 18:0, 1·8%; 18:1,