Taxodiaceen einbezogen.[1] Als Hauptbiflavone werden Hinokiflavon, Amentoflavon und Amentoflavon-4'''-monomethyläther (Podocarpusflavon-A[2]) aufgefunden. Amentoflavon-7-monomethyläther (Sequoiaflavon), der in *Sequoia sempervirens* Endl. vorkommt,[3] ist in Sequoiadendron mit Sicherheit nicht enthalten (DC auf Polyamid) Damit zeigt auch die Biflavonausstattung dieser beiden Arten, die früher in demselben Genus Sequoia untergebracht wurden, einen wesentlichen Unterschied.

EXPERIMENTELLES

Das Pflanzenmaterial (grüne Kurztriebe) wurde im Sommer 1968 im Botanischen Garten der Universität Hohenheim gesammelt.* Die Extraktion, Isolierung und Identifizierung der Biflavone erfolgte in Anlehnung an die *loc. cit.** beschriebenen Methoden. R_f-Werte der Amentoflavonmonomethyläther auf Polyamid 66 mit Nitromethan–MeOH (3:4) als Fliessmittel: Sequoiaflavon, 43; Bilobetin, 59; Sotetsuflavon, 44; Amentoflavon 4'''-monomethyläther-39. Amentoflavon und Hinokiflavon wurden sowohl in freier Form, als auch als Permethyläther unmittelbar mit authentischem Material verglichen. Amentoflavon 4'''-monomethyläther kristallisiert aus Pyridin–MeOH in kleinen gelben Kristallen vom Schmp. 322–324 (Zers.).[2] Er liefert beim Methylieren Amentoflavonhexamethyläther und beim alkalisch oxydativen Abbau Anissäure. Triacetat (Pyridin und Ac_2O 3 Stdn 100° dann H_2O 12 Stdn 0°) amorpher Niederschlag, ohne weitere Reinigung zur massenspektroskopischen Molekulargewichtsbestimmung eingesetzt. $C_{37}H_{26}O_{13}$ (678,6); MGGef. 678 ME.

Anerkennung—Dem Fonds der Chemischen Industrie danken wir für die Gewährung von Sachmitteln, Herrn Professor Dr. B. Frenzel für die Überlassung von Pflanzenmaterial.

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[1] BECKMANN, S., GEIGER, H. und DE GROOT-PFLEIDERER, W. (1971) *Phytochemistry* **10**, 2465; GEIGER, H und DE GROOT-PFLEIDERER, W. (1973) *Phytochemistry* **12**, 463.
[2] MIURA, H., KIHARA, T. und KAWANO, N. (1969) *Chem. pharm. Bull.* **17**, 150.
[3] MIURA, H. und KAWANO, N. (1968) *J. Pharm. Soc. Japan* **88**, 1489.

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CYCLITOLS OF *VINCA ROSEA* AND *AMSONIA ELLIPTICA*

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Key Word Index—*Vinca rosea*; *Amsonia elliptica*; Apocynaceae; cyclitol; L-(+)-bornesitol.

Plant. Vinca rosea Linn. Cultivated at medicinal botanic garden of our university. *Uses.* Medical. *Previous work.* Cyclitols in sister species, *V. difformis* Pourr and *V. major* Linn.[1]

Roots. Extracted with MeOH, evaporated to small vol., diluted with H_2O. After extraction with light petrol., Et_2O and $CHCl_3$, respectively, the aq. layer was concentrated to syrup,

[1] PLOUVIER, V. (1961) *Compt. Rend.* **235**, 3047.

which was extracted with EtOAc. The residue after EtOAc was extracted with $CHCl_3$–MeOH (2:1) and chromatographed on activated charcoal, eluted by EtOH–H_2O (1:99), giving L-(+)-bornesitol (0·01% of roots, $[\alpha]_D$, m.p., m.m.p., IR and TLC).

Plant. Amsonia elliptica Roem et Schult. Cultivated at medicinal botanic garden of our university. *Uses.* None. *Previous work.* Cyclitols in sister species, *A. angustifolia* Michx and *A. Tabernaemontana* Walt.[1]

Leaves and stems. Extracted with MeOH. The extraction procedure was the same as described above. L-(+)-bornesitol (0·006% of leaves and stems, $[\alpha]_D$, m.p., m.m.p., IR and TLC).

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ALKALOIDS FROM *COURBONIA GLAUCA* RHIZOME

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Key Word Index—*Courbonia glauca*; Capparaceae; tetramethylammonium; (±)-3-hydroxy-1,1-dimethylpyrrolidinium; (±)-stachydrine.

Plant. Courbonia glauca[1–3] (synonyms: *C. edulis* Gilg. & Bened.,[1–3] *C. camporum* Gilg. & Bened.,[1,3] *Maerua edulis* Gilg. & Bened.[2]). *Source.* Zambesi Valley, Rhodesia. *Uses.* Native fish poison.

Previous work: Quarternary ammonium compounds have been reported in *C. camporum* Gilg. & Bened.,[4] tetramethylammonium,[5,6] di- and tri-methylamine,[6] (−)-stachydrine ethyl ester[7] and *cis* and *trans* 3-hydroxystachydrine[8] in *C. virgata* A. Brongn. (synonyms: *M. pseudopetalosa* Gilg. & Bened., *C. pseudopetalosa* Gilg. & Bened.[3]). L-Stachydrine[9] was isolated from the fruit of *Capparis tomentosa* Lam., a member of the same family.

Present work. Since betaines and pure quarternary ammonium compounds are not extractable into water-immiscible solvents, indirect methods for their isolation must be employed; for this reason the procedures used are described at some length. Some evidence for the presence of saponins was found, but no attempt to isolate and identify them was made.

[1] VEDCOURT, B. and TRUMP, E. C. (1969) in *Common Poisonous Plants of East Africa*, p. 23, Collins, London.
[2] KILLICK, D. J. B. (1970) in *Flora S. Africa*, Vol. 13, p. 165, Govt. Printer, Pretoria.
[3] ELFFERS, J., GRAHAM, R. A. and DEWOLF, G. P. (1964) *Flora of Tropical East Africa—The Capparidaceae*, p. 43, Crown Agents, London.
[4] WATT, J. M. and BREYER-BRANDWIJK, M. G. (1962) In *Medicinal and Poisonous Plants of Southern and Eastern Africa*, p. 163, Livingstone, London.
[5] HENRY, A. J. (1948) *Br. J. Pharmacol.* **3**, 187.
[6] HENRY, A. J. and GRINDLEY, D. N. (1949) *J. Soc. Chem. Ind.* **68**, 9.
[7] HENRY, A. J. and KING, H. (1950) *J. Chem. Soc.* 2866.
[8] HENRY, A. J. and CORNFORTH, J. W. (1952) *J. Chem. Soc.* 597.
[9] CORNFORTH, J. W. and HENRY, A. J. (1952) *J. Chem. Soc.* 601.