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DISTRIBUTION OF DIARYLPROPANOIDS IN AMAZONIAN *VIROLA* SPECIES*

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Virolane [1-(2-hydroxy-4-methoxyphenyl)-3-(3,4-methylenedioxyphenyl)-propane] and virolanol [2-hydroxy-1-(2-hydroxy-4-methoxyphenyl)-3-(3,4-methylenedioxyphenyl)-propane], two diarylpropanoids recently isolated from the wood of *Virola multinervia* Ducke[1] (Myristicaceae, INPA 2855/21157, Ducke Reserve Manaus), were found to occur additionally in the wood of *V. venosa* (Benth.) Warb. (INPA 1947/13996, Ducke Reserve, Manaus), *V. divergens* Ducke (INPA 2818/14787, Ducke Reserve, Manaus), *V. melinonii* (Benoist) A.C.Sm. (INPA 1315/10356), Navio Mt., Amapá), *V. pavonis* (A.DC.) A.C.Sm. (INPA 599/5160, Ducke Reserve, Manaus) and *V. surinamensis* (Roland) Warb. (INPA 632/5593, Benjamin Constant, Amazonas); and to be absent from *V. calophylla* Spr. ex Warb. (INPA 2036/14207, Ducke Reserve, Manaus), *V. elongata* (Benth.) Warb. (Codajás, Amazonas), *V. rufula* Warb. (INPA 2001/14013, Ducke Reserve, Manaus) and *V. multicostata* Ducke (IPEAN 31005/—, Madeira river, Pará). Among the group of species which contain diarylpropanoids, *V. multinervia* and *V. venosa* were previously examined phytochemically, and it was shown that their bark, root and leaves are almost devoid of alkaloids.[2] In contrast, most of the species of the second group are renowned hallucinogenic plants, due to the presence of tryptamine derivatives[2] in *V. theiodora* (Spr. ex Bth.) Warb., by some considered to be synonymous with *V. rufula*,[3,4] *V. rufula* and *V. calophylla*; and 1,2,3,4-tetrahydro-β-carboline derivatives in *V. theiodora* and *V. rufula*. *V. cuspidata* (Benth.) Warb. considered to be synonymous with *V. elongata*[4,5] contains 1,2,3,4-tetrahydroharman derivatives.[6]

EXPERIMENTAL

Trunk wood samples of *Virola* species (INPA, Manaus, or IPEAN, Belém, No. of wood sample/No. of herbarium sample) were reduced to saw dust and extracted with $CHCl_3$. The extracts were chromatographed on a silica (Merck, 0·05–0·20 mm) column. The fractions eluted successively with benzene and with $CHCl_3$ were compared by co-TLC (Merck, Kieselgel G, visualization of spots with I_2-vapour) with authentic samples. C_6H_6-fraction (developing solvent $CHCl_3$–Me_2CO, 9 : 1): sitosterol (R_f 0·55), virolane (R_f 0·65). $CHCl_3$-fraction (developing solvent $CHCl_3$–Me_2CO, 17 : 3): unknown cmpd. (R_f 0·53), virolanol (R_f 0·57) When present, virolane and virolanol appeared in approx. equal amounts (as determined by the spot areas).

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[1] BRAZ FILHO, R., FROTA LEITE, M. F. and GOTTLIEB, O. R. (1973) *Phytochemisty* **12**, 417.

[2] AGURELL, S., HOLMSTEDT, B., LINDGREN, J.-E. and SCHULTES, R. E. (1969) *Acta Chem. Scand.* **23**, 903.

[3] SMITH, A. C. (1937) *Brittonia* **2** [5], 393.

[4] RODRIGUES, W., forthcoming publication.

[5] DUCKE, A. (1938) *Arch. Inst. Biol. Veget. (Rio de Janeiro)* **4**, 2; ibid. (1939) **5** [1], 22.

[6] CASSADY, J. M., BLAIR, G. E., RAFFAUF, R. F. and TYLER, V. E. (1971) *Lloydia* **34**, 161.