component of the glucoside and the lipid fractions, but tended to accumulate in mature tissues. Stigmasterol, the C-22 unsaturated isomer, accumulated in young leaves and immature flower buds. The proportions of campesterol were generally similar in most organs with the exception of the roots where larger quantities were detected. It was interesting to note that concentrations of cholesterol glucoside were highest in the younger organs, and it is possible that these tissues are the sites of sterol metabolism to the cardenolides and sapogenins.

It is evident that biosynthesis of sterols occurs in the free form, and that either glucoside or ester formation occurs selectively at a stage when biosynthesis is complete, suggesting that a segregation of biological roles could lie behind this enzymatic selection. Free phytosterols have been implicated in the structure of cell and organelle membranes in association with phospholipids (Ansell & Hawthorne 1964; Evans 1971), and it has been suggested by Kemp, Goad & Mercer (1967) that ester sterols represent an intercellular transportation form. The areas of sterol requirement in the mature plant are the actively growing areas, and the export of sterols from mature leaves at the base of the plant could satisfy a heavy sterol requirement. This would involve the phloem transportation of sterols, possibly as the more hydrophilic glucosides, via the stem to the young leaves and developing inflorescence. The high phytosterol glucoside concentrations of these organs add weight to this suggestion.

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The characterization of alkaloid D, a new alkaloid from *Euonymus europaea* L., as armepavine

D. W. BISHAY*, Z. KOWALEWSKI* AND J. D. PHILLIPSON
**Department of Pharmacognosy, Medical Academy, Poznan, Poland; Department of Pharmacy, Chelsea College, University of London, Manresa Road, London, S.W.3, U.K.*

Five new alkaloids have recently been isolated from *Euonymus europaea* L. (Celastraceae) growing in Poland (Bishay & Kowalewski, 1971). These alkaloids are not identical with those reported to be present in *E. europaea* (Doebel & Reichstein, 1949; Pailer & Libiseller, 1962; Libiseller & Preisinger, 1962) and have been named alkaloid A, alkaloid B, alkaloid C, alkaloid D and alkaloid E.

A study of ultraviolet, infrared, nmr and mass spectrometric data suggested the possible identity of alkaloid D with the known alkaloid armepavine [1-(4′-hydroxybenzyl)-2-methyl-1,2,3,4-tetrahydro-6,7-dimethyoxyisoquinoline]. The R_F values of alkaloid D and an authentic sample of armepavine were found to be identical in several t.l.c. systems and the m.p. of authentic armepavine oxalate was not depressed by admixture with the oxalate of alkaloid D. Hence this alkaloid is considered to be identical with armepavine. The ORD curve of the alkaloid shows that it is *R*-(−)-armepavine.

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