THE CONSTITUTENTS OF MURRAYA GLENIEI THWAITES EX OLIV. (RUTACEAE)

The constituents of Murraya gleniei Thwaites ex Oliv. (Rutaceae).

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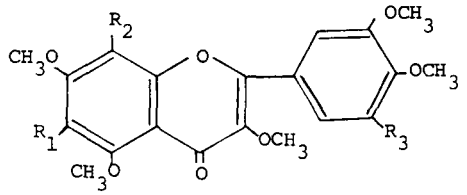
The leaves and young twigs of M. gleniei, a comparatively rare species from Sri Lanka, have yielded the furoquinoline alkaloid skimmianine (0.24%) and three flavones which have been identified, on the basis of their spectral characteristics, as hibiscetin heptamethyl ether (I), 3,3'4',5,5'6,7,8-octamethoxyflavone (II) and 3,3',4',5,6,7,8-heptamethoxyflavone (III). (I) had ^{1}H-NMR and other spectral data identical to published values (Joshi & Kamat 1969; Chowdhury & Chakraborty 1971), whilst (III) showed M^+ = 432 and ^{1}H-NMR spectrum consistent with the proposed structure but having a lower m.p. than previously reported (Walther et al 1966). This was resolved on closer examination of the MS where a peak at M^+ = 462 indicated the presence of a small quantity of an additional compound having an extra OCH_3 group (compared to III), and where the ^{1}H-NMR in C_6D_6 similarly showed a small peak for an eighth OCH_3 group. The absence of any singlet for an A-ring proton in the NMR spectrum leads us to propose that the 'impurity' has the additional OCH_3 group in the C-ring and is therefore (II), having the typical 3',4',5'-substitution. These flavones are typical of the Aurandioideae in general, and of Murraya species in particular, (I) and (IV) having been isolated from M. exotica (=M.paniculata) (Jeffries et al 1962; Dreyer 1968; Chowdhury & Chakraborty 1971), II from M. exotica (Joshi & Kamat 1969), III from Citrus species (Walther et al 1966), whilst IV and its 4',5-dihydroxy derivative (murrayanol) have been found in M. omphalocarpa (Wu 1980). The apparent absence of carbazole alkaloids from M. gleniei and the presence of a furoquinoline alkaloid would seen to distinguish M. gleniei and M. omphalocarpa (Ohta et al 1959) from other investigated members of the genus Murraya in which carbazole alkaloids commonly occur. Similarly, although coumarins appear to be a common constituent of Murraya species, we have not found them to be present in M. gleniei, although they are reported (Wu 1980) to be present in M. omphalocarpa. This divergence from what could be regarded as the 'normal' types of constituents for the genus might reflect some natural division within Murraya. It will be interesting to see whether investigations of other members of the genus provide data to allow this question to be resolved. The presence of skimmianine in M. gleniei in relatively large amounts is of academic interest only since, although this alkaloid is known to potentiate adrenaline and to possess sedative, hypothermic and antidiuretic properties (Berezhinskaya & Trutneva 1963; Evdokimova et al 1971), the rarity of the plant means it could never be regarded as a good source of skimmianine.



I $R_1 = H$; $R_2 = R_3 = OCH_3$

II $R_1 = R_2 = R_3 = OCH_3$

III $R_1 = R_2 = OCH_3$; $R_3 = H$

IV $R_1 = R_3 = OCH_3$; $R_2 = H$

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