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Further Chemical Studies of *Polygonum amphibium* Linn.

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THE plant *Polygonum amphibium*[1] belongs to the family polygonaceae. The literature survey on genus polygonum shows that it is a rich source of flavonoids[2].

Experimental

The dried leaves (2 kg) of *P. amphibium* were powdered and extracted with methanol. The alcoholic extract was concentrated under reduced pressure leaving behind a dark brown viscous mass which was extracted with n-hexane to remove chlorophyll. It was then extracted with acetone and the extract was concentrated under reduced pressure, then mixed with cold water and allowed to stand for 72 h in an ice-bath. The resulting solid was then subjected to column chromatography using silica gel and eluting with ethyl acetate, when a flavonoid compound PC-1 was obtained. Similarly, after the working up of aqueous extract two more compounds PC-2 and PC-3 were obtained which were identified as glycosides of arabinose and xylose.

Characterisation of PC-1 : PC-1 formed yellow crystalline needles when crystallised from light petrol-benzene (1 : 1), [M^+ 302], m.p. 314–16°

(Found : C, 59.56 ; H, 3.74. $C_{15}H_{10}O_7$ calcd. for : C, 59.60 ; H, 3.81%) ; ν_{max} 1 615, 1 670 and 3 481 cm^{-1} ; gave positive tests for a flavonal aglycone. PC-1 was hydrogenated using Pd/C (5%) in ethanol. It readily absorbed one molar equivalent of hydrogen. After usual work-up, the hydrogenated product (purified by preparative tlc) was crystallised from ethyl acetate, [M^+ 304], m.p. 297–98° (Found : C, 59.14 ; H, 3.84. $C_{15}H_{12}O_7$ calcd. for : C, 59.21 ; H, 3.91%) ; λ_{max} 227 nm. On acetylation PC-1 formed a colourless crystalline acetyl derivative, m.p. 191–93°. Compound PC-1 was, therefore, characterised and identified as quercetin by direct comparison of m.m.p., co-tlc and superimposable ir spectra with an authentic sample of quercetin.

Characterisation of PC-2 and PC-3 : The aqueous extract left after removal of the solid deposit was concentrated when a thick mass was obtained. It was extracted with ethyl acetate and the concentrated ethyl acetate extract was subjected to column chromatography using silica gel and eluting with methanol, when a colourless compound was obtained. This compound responded to all the tests of glycosides. It was subjected to acid hydrolysis and the hydrolysate was subjected to column chromatography using silica gel when two compounds PC-2 and PC-3 were obtained.

Compound PC-2, m.p. 158–59°, was characterised as arabinose by direct comparison of m.m.p., co-tlc and ir spectra with an authentic sample of arabenose. Compound PC-3, was similarly identified and characterised as xylose by direct comparison of m.m.p., co-tlc and ir spectra with an authentic sample.

The presence of quercetin, and glycosides of arabinose and xylose is the first report in *P. amphibium*.

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