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NOTES

Pelargonidin-5-O-β-D-Galactoside from Heartwood of *Cassia Auriculata*, Linn.

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A new anthocyanidin glycoside has been isolated from the heartwood of *Cassia auriculata* linn and its structure established as pelargonidin-5-O-β-D-galactoside on the basis of spectral data and chemical studies.

Cassia auriculata Linn. (Leguminosae) is known to contain flavonoids, anthraquinones and leucoanthocyanidin either free or in the form of glycosides[1–3]. The plant is a small perennial shrub mostly growing wildly in Rajasthan and Central India. It is used in indigenous medicine as antihelmintic and astringent, and it is also used in opthalmia, conjunctivities, diabetes and chylous urine[4, 5]. In the course of our investigations on the biologically active constituents of Indian traditional medicines, we have isolated a new anthocyanidin glycoside from the heartwood of the plant.

Air-dried crushed heartwood (10 kg) of *C. auriculata* was successively extracted with hexane, $CHCl_3$ and alcohol. The concentred alcoholic extract was treated with ice-cold water and the aqueous filtrate extracted with EtOAc and *n*-butanol. Each extract was worked up separately.

The concentrated *n*-butanol extract deposited an orange solid which was chromatographed over silica gel using acetone-methanol gradient as eluent. Elution of the column with acetone-MeOH (9 : 1 v/v) yielded a compound which crystallised from MeOH-ether as a buff coloured compound (0.3g).

The compound analysed for $C_{21}H_{22}O_{10}$, m.p. 230–32°, R_f = 0.35 (PC, BuOH : HOAc : H_2O = 4 : 1 : 5 v/v); (Found: C, 57.15; H, 4.6 Calc. for $C_{21}H_{22}O_{10}$: C, 58.06; H, 5.07%; Uv(MeOH) λ_{max} : 514 nm; IR(KBr) (cm^{-1}) ν_{max} : 3410 (OH), 1604, 1520, 1460 (aromatic), 1180, 1150, 1060, 950 and 840, 810 (sugar moiety) 730; MS : m/z 434 (m^+). The compound showed positive colour tests for a glycoside. It gave red colour on heating with 5% ethanolic-HCl, the red colour so obtained could be extracted completely, with amyl alcohol and the amyl alcohol extract when treated with sodium acetate, turned bright bluish red, changing again to red on addition of HCl, thus behaving like naturally occurring anthocyanin[6].

Hydrolysis of the glycoside with 10% of HCl afforded anthocyanidin and D-galactose (PC, R_f = 0.16; Co–PC and Osazone, 183°C) as sugar moiety. The

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anthocyanidin gave R_f = 0.56 and 0.80 (PC, solvent, AcOH : HCl : H_2O = 5 : 1 : 5 and 2N–HCl respectively); λ_{max} : 430(sh), 521 nm; no alternation on addition of $AlCl_3$. Thus, the anthocyanidin was identified as pelargonidin by its colour reactions, Co–PC, spectral studies[7] and comparison with an authentic sample of pelargonidin isolated from *Impatiens balsamina* flowers[8].

The aglycone disaplayed a distinct shoulder at 430 nm besides the main absorption peak in the UV spectrum which was found absent in the glycoside indicating the attachment of galactose at C–5 of the pelargonidin[7]. This was also supported by the hypsochromic shift of only 7 nm in the main absorption peak of the glycoside in UV spectrum (*i.e.*, 521 to 514 nm)[7].

The permethylated glycoside on hydrolysis furnished 2, 3, 4, 6-tetra-O-methyl-D-galactose which was identical to the methyl galactose obtained by D-galactose sample.

On the basis of the above observations the structure of the new glycoside was assigned as pelargonidin-5-O-β-D-galactoside.

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