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A NEW CHALCONE GLYCOSIDE FROM BAUHINIA PURPUREA

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Seeds of *Bauhinia purpurea* (identified by staff of the Botanical Survey of India, Allahabad) yielded a new chalcone glycoside, $C_{27}H_{34}O_{16}$, mp 265°. This gave the characteristic colour reactions of a chalcone and ion hydrolysis with 8% ethanolic H_2SO_4 for 12 hr gave butein [1, 2] and a disaccharide, the component sugars of which were found as galactose and arabinose. These sugars were confirmed by co-chromatography with authentic samples and by the preparation of their osazones. Galactose mp 164° (lit. 159°), phenylosazone mp 194° (lit. 196°), arabinose mp 156° (lit. 159°), osazone mp 160°, acetyl derivative mp 98° (lit. 96°) were identified.

The aglycone butein $C_{1,1}H_{1,2}O_5$, mp 213–214° was identified by its $R_{1,2}O_5$, λ_{max}^{MeOH} 265 and 379 nm. It gave a shift of 60 nm on addition of NaOMe showing the presence of free hydroxyl group at position 4'. A bathochromic shift of 46 nm on addition of AlCl₃ showed the presence of a free hydroxyl group at 2'. The presence of an *ortho* dihydroxyl group at positions 3 and 4 was confirmed by the bathochromic shift of 36 nm with NaOAc-H₃BO₃. Periodate oxidation indicated that both sugars in the disaccharide had the pyranose configuration; 4 mol of periodate were consumed with the liberation of 1.8 mol of formic acid.

The attachment of the sugar moiety is at position 4', since the aglycone gave a bathochromic shift of 60 nm with NaOMe while the glycoside did not. On methylation of the glycoside followed by hydrolysis with Kiliani's reagent (HCl-HOAc-H,O, 35.5; 15:5), two methylated sugars were identified as 2,3,6-tri-O-methyl-D-galactese and 2,3,5,tri-O-methyl-L-arabinose. Both methylated sugars were confirmed by their R_G values relative to 2,3,4,6-tetramethyl-D-glucose (TMG). R_G found for 2,3,6tri-O-methyl-D-galactose 0.70 (lit. 0.71) and for 2,3,5-tri-O-methyl-D-arabinose 0.95 (lit. 0.96) in *n*-BuOH-EtOH-H₂O (5:1:4). This indicates that C₁ of galactose is linked with aglycone at position 4' and its C₄ is linked with arabinose at position C₁. The chloroform solublemethylated aglycone, was identified as 2',3,4,4'-tetra-Omethylbutein, which indicates that the sugar moiety is attached at position 4' of the aglycone.

Arabinose was identified in the aqueous hydrolysate, obtained by the partial hydrolysis of the glycoside with formic acid in cyclohexanol [3] while galactose was not detected. This indicates that arabinose is linked at the terminal position of the disaccharide while galactose is linked with the aglycone.

Complete enzymic hydrolysis of glycoside with emulsin indicates that galactose is linked with arabinose as well as with aglycone by β -linkage. Thus the new glucoside is identified as butein 4'-O- β -L-arabinopyranosyl-O- β -Dgalactoside.

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