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A CHALCONE GLYCOSIDE FROM THE FLOWERS OF *ADHATODA VASICA*

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Key Word Index—*Adhatoda vasica*; Acanthaceae; 2',4-dihydroxychalcone 4-O- β -D-glucopyranoside.

Abstract—2',4-Dihydroxychalcone 4-glucoside has been identified in the flowers of *Adhatoda vasica*.

In the flowers of this plant, we have found a new glucoside, $\text{C}_{21}\text{H}_{22}\text{O}_8$, mp 195–197°, which gave the characteristic colour reactions of a chalcone [1] and gave 2',4-dihydroxychalcone, $\text{C}_{15}\text{H}_{12}\text{O}_3$ [2] and glucose on acid hydrolysis (8% ethanolic solution for 14 hr). The identity of the sugar was confirmed by co-chromatography with an authentic sample and by the preparation of the osazone.

The pale yellow aglycone, $\text{C}_{15}\text{H}_{12}\text{O}_3$, mp 145–146°, was identified as 2',4-dihydroxychalcone from its R_f values (0.93 in *t*-BuOH–HOAc– H_2O (3:1:1) and 0.11 in 15% HOAc and by alkaline cleavage [3] to give the *o*-hydroxyacetophenone, oxime (mp 115°, lit. 117°), phenylhydrazone (mp 107°, lit. 109°), *p*-hydroxybenzoic acid (mp 210°, lit. 213°) and amide (mp 160°, lit. 162°).

These results indicate the presence of 2',4-dihydroxychalcone having one hydroxyl group in each ring which was further confirmed by spectral studies. UV $\lambda_{\text{max}}^{\text{MeOH}}$ were 369 and 278 nm and a bathochromic shift of 58 nm was obtained on the addition of $\text{AlCl}_3 + \text{HCl}$ showing the presence of a free hydroxyl group at position 2'. The aglucone also gave a bathochromic shift of 60 nm with NaOMe, the glucoside did not give this shift, indicating that the glucose is attached at position 4.

Periodate oxidation of the glucoside indicated the pyranose configuration: 2 mol of periodate were

consumed with the liberation of 1 mol of formic acid. On methylation of the glucoside followed by hydrolysis with the Kiliani reagent (HCl –HOAc– H_2O) (7.1:3:1) 2,3,4,6-tetra-*O*-methyl-D-glucose [4] was identified. The identity of the methylated sugar was confirmed by comparison of R_G value with 2,3,4,6-tetra-*O*-methyl-D-glucose (TMG); R_G , 0.99 (lit. 1.00) in butanone– H_2O – NH_4OH (100:50:3) and 0.99 (lit. 1.00) in *n*-BuOH–EtOH– H_2O (5:1:4). This result indicates that C_1 of the glucose is linked with the aglucone at position 4. The methylated aglucone was identified as 4-hydroxy-2'-*O*-methoxychalcone. Complete enzymic hydrolysis with emulsin indicates that the sugar is β -linked. Thus, the new compound is 2'-hydroxy-4-glucosyloxychalcone.

Flowers were collected from the Vindh area of Mirzapur (U.P.) and identified by the Botanical Survey of India, Allahabad.

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