

A CHALCONE GLYCOSIDE FROM THE HEARTWOOD OF *SHOREA ROBUSTA*

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Abstract—The glucoside of 4'-hydroxychalcone has been identified in the heartwood of *Shorea robusta*.

In the heartwood of *Shorea robusta* we have found a new chalcone glycoside, $C_{21}H_{22}O_7$ (mp 191–193°), which gave a characteristic colour reaction of a chalcone [1]. It gave a positive Molisch test showing its glycosidic nature. On hydrolysis with 8% ethanolic H_2SO_4 for 12 hr, 4'-hydroxychalcone, $C_{15}H_{12}O_2$, along with glucose was obtained. The sugar was identified by cochromatography with authentic samples and by the preparation of the osazone.

The yellow, needle-shaped aglucone, $C_{15}H_{12}O_2$, mp 172–175°, was identified as 4'-hydroxychalcone [2] from its R_f values (0.93 in *t*-BuOH–HOAc– H_2O) and 0.20 in 15% HOAc and by alkaline cleavage [3] to give *p*-hydroxyacetophenone, oxime (mp 142°, lit. 144–145°), benzoic acid (mp 120°, lit. 121.2°) and benzamide (mp 126°, lit. 128°).

These results indicate the presence of one group in ring B which was further confirmed by spectral studies. The λ_{max} (EtOH) values were 224 and 328 nm and a bathochromic shift of 62 nm was obtained on the addition of NaOMe showing the presence of a free hydroxyl group at position 4' in the aglucone, while the absence of an alkaline shift in the glucoside confirmed the attachment of the sugar at the 4'-position.

Periodate oxidation of the glucoside indicated the pyranose configuration. Periodate (2 mol) was consumed

with the liberation of 1 mol of formic acid. On methylation of the glycoside followed by hydrolysis with Kiliani's reagent ($HCl-HOAc-H_2O$, 7.1:3:1) 2,3,4,6-tetra-*O*-methyl-D-glucose [4] was identified in the aqueous hydrolysate. The identity of the methylated sugar was confirmed by comparison of R_G value with 2,3,4,6-tetra-*O*-methyl-D-glucose standard [R_G 0.99 (lit. 1.00) in butanone– H_2O-NH_4OH (100:50:3) and 0.99 (lit. 1.00) in BuOH–EtOH– H_2O (5:1:4)]. This result indicates that C_1 of the glucose is attached to the aglucone at position 4'. Complete enzymic hydrolysis of the glucoside with emulsin indicated the presence of a β -linkage. Thus the new glucoside is 4'-hydroxychalcone-4'-*O*- β -D-glucopyranoside.

Heartwood was collected from REWA and identified by Botanical Survey of India, Allahabad.

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