AN INVESTIGATION OF THE GLYCOSIDES OF JUTE.
V. COROLOSIDE AND DESGLUCOCOROLOSIDE

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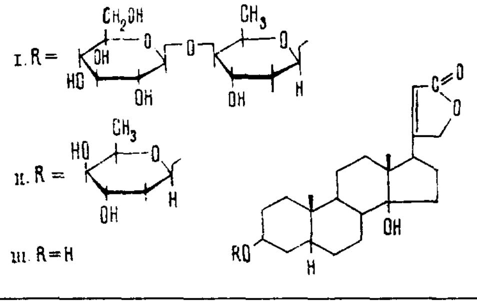
The fraction of glycosides of medium polarity obtained by the ethanolic extraction of the seeds of *Corchorus olitorius* L. were repeatedly chromatographed on alumina in the butan-1-ol—toluene—water (1:1:1) system and — in addition to olitoriside [1] and erysimoside [2] — we isolated 0.005% of the new glycoside coroloside (I), $C_{35}H_{54}O_{12}$, mp 235-237°C, $[\alpha]_D^{20}$ −46.7 ± 2° (c 1.50; ethanol). Coroloside penta-O-acetate had mp 183-184°C, $[\alpha]_D^{20}$ −21.5 ± 2 (c 1.45, methanol).

When a mixture of 20 mg of (I) and 1 ml of 0.1 M methanolic H_2SO_4 was allowed to stand for a day at 20°C, the coroloside hydrolyzed completely. After the addition of an equal volume of water and evaporation of the methanol, crystals deposited (13 mg) with mp 236-238°C, $[\alpha]_D^{20}$ + 15.0 ± 2° (c 1.90; methanol). On the basis of its mass spectrum (M^+ 374; m/e 356, 338, 323, 246, 203) and the results of a chromatographic comparison (PC in the chloroform—dioxane—methanol (7: 2: 0.5)/formamide system and TLC on SiO_2 in the chloroform—10% methanol and chloroform—benzene—methanol (5:5:2) systems), the aglycone was identified as digitoxigenin (III). Olitoribiose was found in the aqueous solution after the separation of (III) [PC in the butan-1-ol—benzene—pyridine—water (5:1:3:3) system]. Hydrolysis of the disaccharide with 1N H_2SO_4 formed D-glucose [PC in the butan-1-ol—methyl ethyl ketone—borate buffer (1:1:2) and TLC on SiO_2 impregnated with NaH_2PO_4 in the butan-1-ol—methanol—water (5:3:1) system] and D-boivinose [3] [PC in the toluene—butan-1-ol—water (4:1:5) system and TLC on SiO_2 with the chloroform—methanol (9:1) and butan-1-ol—methanol—water (5:3:1) systems].

The same sugars were formed when the initial glycoside (I) was hydrolyzed with 1 N H_2SO_4.

Under the action of the pancreatic juice of the grape snail, (I) was cleaved into D-glucose and desglucocoroloside (II), $C_{29}H_{44}O_7$, mp 190-192°C, $[\alpha]_D^{20}$−22,9 ± 2° (c 1.66; methanol). Glycoside (II) was readily hydrolyzed by 0.1 N H_2SO_4, forming digitoxigenin (III) and D-boivinose. The β-glycosidic nature of the linkage of (III) with the sugar was established by a calculation of molecular rotation differences. Desglucocoroloside (II) has the structure of digitoxygenin 3-O-β-D-boivinoside. The structure of olitoribiose has been shown previously [4]. According to this, coroloside is represented by the structure of digitoxigenen 3-O-[4'-β-D-glucopyranosyl-β-D-boivinopyranoside].



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