PLUMBAGIN FROM Ceratostigma willmottianum

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The comminuted fresh rhizomes, stems, and leaves of the plant Ceratostigma willmottianum Stapf (Plumbaginaceae) were extracted with petroleum ether (20 volumes) (fraction with bp up to 65°C) by steeping at room temperature. The epigeal part was extracted twice and the rhizones four times. The corresponding extracts were combined and were treated in a separating funnel with 0.1 N aqueous NaOH. The crimson-red alkaline salt was acidified with 10% H_2SO_4 to a yellow color and was extracted with small portions of diethyl ether. The ethereal extract was washed with water and dried with anhydrous Na_2SO_4. The dry residue obtained after the elimination of the ether was twice recrystallized from 60% ethanol. The crystals had the form of orange-yellow needles with the composition $C_{11}H_8O_3$, mp 75.5-76°C (in open capillaries).

Solutions of the crystals in methanol were studied by chromatography on "Filtrak" paper impregnated with a 5% solution of silicone oil in cyclohexane in the ethanol–water–acetic acid (75 : 22.5 : 2.5) solvent system. The substance formed only one spot on the chromatograms, which completely coincided in R_f value and in color (before and after treatment with alkali) with that of plumbagin (5-hydroxy-2-methyl-1,4-naphthoquinone) isolated from Ceratostigma plumbaginoides Bunge [1]. Its IR spectrum was also identical with that of plumbagin.

A mixture with an authentic sample of plumbagin gave no change in the melting point. The amount of plumbagin in the plant was determined colorimetrically [2]. In young rhizomes in the first 10 days of June the amount of this substance was 1.1% (fresh weight), and in the stems and leaves it did not exceed 0.02-0.03%.

LITERATURE CITED

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2. L. R. Shcherbanovskii, Ukr. Bot. Zh., 28, No. 1, 18 (1971).

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