

Onosma visianii Clem., family Boraginaceae [1, 2] was collected in the Crimea (Karadag) with the cooperation of V. M. Kosykh.

We steeped the roots of the plant in organic solvents. Intensely red extracts were obtained. By chromatography on paper impregnated with a 5% solution of silicone oil in cyclohexane with the solvent system ethanol-water-acetic acid (75:22.5:2), it was shown that the red substance gives a spot with the same  $R_f$  value and color as shikonin isolated from Echium rubrum Jacq [3, 4].

The red substance was isolated from comminuted air-dry roots of O. visianii with petroleum ether (fraction boiling at 45-65°C) and was purified from accompanying impurities by a slight modification of Brockmann's method [5], by treating the concentrated extract with 0.2 N NaOH, acidifying the alkaline solution with 10% H<sub>2</sub>SO<sub>4</sub> to pH 3-4, and extracting the shikonin from the acidified solution with petroleum ether. After the extracts had been concentrated to saturation and cooled, the residue deposited a crystalline precipitate. The yield of substance from young roots was 0.52% and from old roots of the plant 0.35%.

The compound has the composition C<sub>16</sub>H<sub>16</sub>O<sub>4</sub>, mp 143.5-144.5°C (from petroleum ether). A mixture with an authentic sample of shikonin gave no depression of the melting point. The IR and UV spectra of the substance coincided with those of shikonin. Solutions in benzene (0.05 M) were dextrorotatory.

The substance isolated from the roots of Onosma visianii Clem. is (+)-shikonin [5,8-dihydroxy-2-(1-hydroxy-4-methylpent-3-enyl)-1,4-naphthoquinone].

No shikonin was found in the epigeal organs of the plant.

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