

ECHINATIC ACID FROM THE ROOTS OF GLYCYRRHIZA MACEDONICA

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Echinatic acid was first found in the roots of Glycyrrhiza echinata [1]. We have studied the roots of Glycyrrhiza macedonica Boiss et Orph., collected in 1969 on the R. Terek in the environs of the village of Shelkovskaya.

The total saponins (12%) were obtained from the roots of the plant with a 1% solution of ammonia. It was shown by electrophoresis [2] that they consisted of two substances.

These saponins (10 g) were hydrolyzed with 2.5% H₂SO₄ in 200 ml of methanol. After 2 hr, 1.9 g of macedonic acid precipitated. The acid was filtered off, and 200 ml of water was added to the hydrolysate. The new precipitate (4.5 g) was dissolved in 100 ml of ether, and the acid products were extracted successively with 1% sodium hydrogen carbonate and 1% caustic potash solutions. After the ether was distilled off, the residue was dissolved in 25 ml of chloroform and purified on a column of alumina (500 g, activity grade III). On elution with chloroform, a crystalline product was isolated (3.8 g) which was carefully ground and heated in 200 ml of 3% aqueous H₂SO₄ for 4 hr. The powder was filtered off, dried, and recrystallized from ethanol. The substance was sparingly soluble in ether and chloroform and readily soluble in ethanol and pyridine. From its R_f values, UV and IR spectra, melting point (296–298° C), and mixed melting point with an authentic sample, the substance was identified as echinatic acid.

REFERENCES

1. N. P. Kir'yalov and T. N. Naugol'naya, ZhOKh, 33, 2, 1963.
2. V. F. Semenchenko and I. A. Murav'ev, Rast. res., 4, 1, 1968.

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