THE ISOLATION OF VINCANINE AND VINCANIDINE FROM THF ROOTS OF Vinca erecta

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The roots of the plant V. erecta growing in Central Asia form the raw material for the isolation of vincanine [1] and vincanidine [2].

When vincanine is produced by a published method [3], the vincanidine remains almost completely on the cation-exchange resin, and its desorption requires the consumption of a large amount of solvent and time.

We have developed a method for isolating these alkaloids from the roots of V. erecta in which it is possible to obtain vincanidine in good yield and to increase the yield of vincanine by 10% as compared with the existing method.

The comminuted roots collected in 1972 in the Osh oblast (5 kg) were charged into five extractors and extracted with 1% H_2SO_4 by the battery extraction method at the rate of 226 liters/h · m^2 (consumption 4 liters/h). Each 10 liters of extract was made alkaline with conc. NH_4OH to pH 8-8.5, and the alkaloids were extracted with chloroform. The aqueous extract was checked for the absence of alkaloids by thin-layer chromatography on silica gel [4]. A total of 50 liters of extract was obtained which was treated with 30 liters of chloroform.

The combined chloroform extracts were evaporated to 5 liters, and the phenolic alkaloids were extracted with 5% NaOH.

The alkaline solution was made acid with 10% H_2SO_4, washed once with ether, and was made alkaline again with NH_4OH to pH 8-8.5 and the phenolic alkaloids were extracted with 20 liters of ether. When the ether was concentrated, crystals of vincanidine precipitated – 17.5 g, or 70% of the amount in the raw material.

The nonphenolic alkaloids from the chloroform were transferred into 10% H_2SO_4, and this solution was made alkaline to pH 8-8.5 and extracted with 10 liters of benzene. Evaporation of the benzene solution gave 25.5 g of vincanine, or 85% of the amount in the raw material.

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