

ISOLATION OF ALKALOIDS FROM THE SEEDS
OF *Haplophyllum perforatum* BY THE ION-EXCHANGE METHOD

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H. perforatum is the most widespread species of the genus *Haplophyllum* [1] and its seeds are the richest in alkaloids [2-4]. It has been shown by pharmacological investigations that the alkaloids of the seeds of *H. perforatum* possess a well-defined sedative, antispasmodic, and anesthetic action [5]. Consequently, it was necessary to develop a method for isolating the alkaloids from the seeds of *H. perforatum*.

As a result of the investigations performed, we have proposed an ion-exchange method for isolating the combined alkaloids from the seeds of *H. perforatum* which enables weak aqueous solutions of mineral acids (0.5-1%) to be used as solvent. This method of isolating the combined alkaloids is the simplest and most economical. In this method, 10 kg of comminuted seeds of *H. perforatum* was charged into a 50-liter extractor and extracted continuously with a 1% solution of sulfuric acid. The acid solution of the alkaloids was passed through an adsorber containing 3 kg of KU-1 cation-exchange resin in the H form. The rate of flow of extractant was 500-550 liters/h · m². After the complete extraction of the alkaloids from the raw material, the adsorber was washed with water and the alkaloids were desorbed with a 1.5% solution of ammonia in 92% ethanol. The rate of passage of the eluent was 150 liters/h · m². The ethanolic eluate was concentrated, and the aqueous residue of about 3-3.5 liters was acidified with 20% sulfuric acid, filtered, and washed three times with chloroform. The washed acid solution was made alkaline with 25% ammonia, and the alkaloids were extracted with chloroform. The chloroform extract was evaporated to dryness. The residue was dissolved in acetone with heating, activated carbon was added, and the solution was filtered and concentrated until the solvent had been eliminated completely. The residue (52.4 g) consisted of a yellow microcrystalline powder of the combined alkaloids. The yield of combined alkaloids was 0.52% of the weight of the air-dry seeds.

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