

## ISOLATION OF FOETIDINE

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We have previously reported the isolation of foetidine by the ion-exchange method [1] and its partition coefficient between organic solvents and the eluate [2].

The aim of the present work was to develop a method for isolating foetidine by liquid extraction from the epigeal part of *Thalictrum foetidum*. To determine the optimum conditions for the liquid extraction of foetidine we treated an extract with organic solvents and mixtures of them. The exhaustion of the extract was achieved with three contacts of the phases.

The partition coefficient of foetidine between extract and organic solvent (Table 1) proved to be highest for mixtures of gasoline and chloroform (4:1 and 2:1), which was established for the organic solvent and the eluate [2]. Consequently, as the solvent for liquid extraction, gasoline-chloroform (4:1) was recommended. The investigations performed enabled a method of isolating foetidine from the epigeal part of the plant mentioned by liquid extraction to be developed. The comminuted plant material (267 kg), containing 0.073% of foetidine, was extracted with a 1% solution of sulfuric acid. The extract was made alkaline to pH 8 with 25% ammonia solution and re-extracted with gasoline-chloroform (4:1). The consumption of solvent, taking recovery into account, was 1.5 liter/kg of raw material. The liquid extraction was performed in an extractor of the mixing-setting type with a centrifugal stirrer and an upper suction tube in the mixer [3]. The heavy phase (extract) was fed to the bottom of the mixing chamber, and the light phase (organic solvent) to the top of the chamber. The two phases passed through the extractor in countercurrent. The organic extract was evaporated to dryness, giving 320 g of combined alkaloids, which was dissolved in 5% hydrochloric acid. The technical product that deposited was recrystallized from water. The yield of foetidine hydrochloride was 0.067% of the total weight of the raw material.

Thus, the partition coefficients of foetidine between organic solvents and an extract have been determined. It has been established that the highest coefficient is given by mixtures of gasoline and chloroform in ratios of 4:1 and 2:1.

A method for isolating foetidine by liquid extraction, increasing the yield of the material by 5-10% as compared with the existing ion-exchange method [1], has been developed.

TABLE 1

Solvent	Yield of combined alkaloids, % of the combined	Foetidine content, % of the combined alkaloids	Partition coefficient
Benzene	0,128	36,0	2,4
Gasoline	Very little extracted	—	—
Chloroform	0,164	30,0	3,0
Gasoline - chloroform			
4:1	0,136	36,0	3,0
2:1	0,14	35,0	3,0
Gasoline - Benzene, 1:1	0,2	23,5	2,6

## LITERATURE CITED

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