QUANTITATIVE DETERMINATION OF AJMALINE IN DRUG RAW MATERIAL

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For the quantitative determination of ajmaline in drug raw material (bark and roots of Rauwolfia serpentina, R. vomitoria, and R. canescens, and a R. serpentina tissue culture) a method of analysis has been developed which consists of the following steps: comminution of the raw material, extraction of the alkaloids, chromatographic separation, and the elution and spectrophotometric determination of ajmaline.

For the extraction of the alkaloids, 5 g of finely ground raw material was alkalinized with 3 ml of a 10% solution of ammonia, 200 ml of chloroform was added, and extraction was carried out for 2.5 h, as described previously [1]. The extract was filtered and its volume was measured, after which the liquid was evaporated and the residue was dissolved in 5 ml of ethanol–chloroform (1:1). The concentrated alkaloid solution (0.1 ml) was deposited on a Silufol UV-254 plate in parallel with a standard (0.01%) solution of ajmaline (0.1 ml). Chromatography was conducted in the butan-1-ol–glacial acetic acid–water (4:1:1) system, and then the sections with the ajmaline zones were cut out and each was transferred to a flask for quantitative determination. The ajmaline was eluted with 96% ethanol, the solution was filtered, and its optical density was measured on a SF-26 at λ_{max} 249 nm [2]. The ajmaline content was calculated on the basis of the amount of it in the control sample.

Below are given the results of the quantitative determination of ajmaline in plant raw material (biomass of a tissue culture of R. serpentina); they agree with the results of a determination of ajmaline in a tissue culture of R. serpentina obtained with the aid of the extraction-photometric method [3]:

Spectrophotometric Method					Extraction-photometric method
Amount of alkaloid in the sample, $\bar{x}$, %	Number of determinations, n	$S_{\bar{x}}$	$E_{0.95}$	E, %	Amount of ajmaline in the sample, $\bar{x}$, %
0.79	15	0.007	0.0149	1.86	0.83 + 0.06

As we see, the spectrophotometric determination of ajmaline gives well reproducible results and is accurate and simple in application. The method has been tested in the analysis of a R. serpentina tissue culture and of the plants R. canescens, R. vomitoria, and R. serpentina.

LITERATURE CITED

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