QUANTITATIVE DETERMINATION OF LYCORINE IN DIHYDROLYCORINE

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Preparations of the alkaloids lycorine and dihydrolycorine are used in medical practice [1-3]. Dihydrolycorine is obtained from lycorine by its catalytic hydrogenation [4]. Traces of the starting material have an adverse effect on the specific antiarrhythmic action of dihydrolycorine hydrochloride. To check the quality of the finished product, we have used thin-layer chromatography in a fixed layer of silica gel in the chloroform–ethanol (8:2) system. The R_f values of lycorine and dihydrolycorine hydrochlorides are 0.8 and 0.2, respectively. The plates were developed with Dragendorff's reagent as modified by Munier [5]. The sensitivity of the reagent for lycorine hydrochloride amount to 80 γ; 1 ml of a 1% aqueous solution of the substance was deposited on the plate. The amount of lycorine hydrochloride in the preparation was determined by the chromatospectrophotometric method in the following way: 0.5-1.0 ml of the solution under investigation was deposited on a plate (13×18 cm) with a fixed layer of silica gel, a marker (lycorine hydrochloride) was placed adjacent to the experimental spot, and chromatography was performed in the system mentioned above. The part of the sorbent corresponding to the lycorine spot was separated off and was covered with 10 ml of ethanol. After steeping for 3-5 h (complete desorption was shown by preliminary experiments), the solution was filtered and the optical density of the eluate was measured at a wavelength of 292 nm [6] in a cell with a layer thickness of 1 cm. The optical density of a solution of a standard sample containing 0.05 mg/ml of lycorine hydrochloride was measured in parallel. The method was checked on synthetic mixtures of dihydrolycorine and lycorine hydrochlorides in which the amount of the latter did not exceed the amount permitted by the standard (less than 1%). The relative error of the determinations was ±3%.

The amount of dihydrolycorine hydrochloride in the sample was determined by nonaqueous titration [7], and that in a 1% ampul solution by the mercurimetric method [8].

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