

## CARDENOLIDES OF *Adonis wolgensis*

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It is known that the herb *Adonis wolgensis* Steven possesses a cardiotonic activity [1]. However, there have been no investigations to determine the structure of the active substances.

We give the results of a study of the cardiotonic substances of *A. wolgensis*.

By chromatography on paper of purified extracts of the epigeal part of the plant in the benzene-methyl ethyl ketone (95:5)/water (35%), chloroform/formamide (25%), and tetrahydrofuran-chloroform (1:1)/formamide (25%) systems, no less than 10 substances of cardenolide nature were detected. The extraction, purification, and separation of the substances was performed as described previously [2].

Three cardenolides were obtained which were shown by their physicochemical properties, transformation reactions, colorations with 84% sulfuric acid,  $R_f$  values in various systems, IR spectra, and mixed melting points to be identical with the following substances obtained previously from *A. amurensis* [2]: strophanthidin [ $C_{23}H_{32}O_6$ , mp 138-142°/223-225°,  $[\alpha]_D^{21} + 44^\circ$  (ethanol)], cymarine [ $C_{30}H_{44}O_9$ , mp 137-139°,  $[\alpha]_D^{22} + 37^\circ$  (ethanol)], and k-strophanthin- $\beta$  [ $C_{36}H_{54}O_{14}$ , mp 187-193°/205-210°,  $[\alpha]_D^{22} + 32^\circ$  (ethanol)].

### LITERATURE CITED

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