

## CARDENOLOIDS OF *Adonis wolgensis*

V. Ya. Yatsyuk, N. F. Komissarenko,  
and É. V. Gella

UDC 547.92.615.711.5

Continuing a study of the cardiac glycosides of the epigeal part of *Adonis wolgensis* Steven. [1-3], we have isolated another two cardenolides from the polar fraction.

Substance (I),  $C_{42}H_{64}O_{19}$ , mp 179-182°C,  $[\alpha]_D^{20} +13.8$  (c 0.1; ethanol) formed with 84% sulfuric acid a coloration changing with time: 0 min - green; 85 min - lemon-yellow; 205 min - green. The acid hydrolysis of substance (I) led to the formation of strophanthidin, D-cymarose, and D-glucose. Enzymatic hydrolysis with an enzyme preparation of the grape snail led to the appearance after 5-7 min of k-strophanthin- $\beta$ , and then cymaridin.

The results of acid and enzymatic hydrolysis permitted substance (I) to be identified as strophanthidin 3-O- $\beta$ -D-glucopyranosyl-(1  $\rightarrow$  4)-O- $\beta$ -D-glucopyranosyl-(1  $\rightarrow$  4)- $\beta$ -D-cymaropyranoside.

Substance (II) was isolated in very small amount. With 84% sulfuric acid it formed the following colors: 0 min - yellow; 1 min - red-brown; 5 min - carmine. On acid hydrolysis L-rhamnose was split off and agenin was formed which on parallel chromatography in chloroform-formamide (25%) and octanol-amy alcohol-water-formamide (6:2:8:2) proved to be identical with adonitoxigenin.

A chromatographic comparison of substance (II) with adonitoxin showed their identity.

This is the first time that k-strophanthoside and adonitoxin have been isolated from the herb spring adonis.

### LITERATURE CITED

1. N. F. Komissarenko, É. P. Korzennikova, and V. Ya. Yatsyuk, *Khim. Prirodn. Soedin.*, 434 (1973).
2. N. F. Komissarenko, É. P. Korzennikova, and V. Ya. Yatsyuk, *Khim. Prirodn. Soedin.*, 806 (1974).
3. V. Ya. Yatsyuk, N. F. Komissarenko, and É. V. Gella, *Rast. Res.*, 11, No. 4, 515 (1975).

Kursk State Medical Institute. Khar'kov Scientific-Research Institute of Pharmaceutical Chemistry.  
Translated from *Khimiya Prirodnikh Soedinenii*, No. 5, p. 672, September-October, 1976. Original article submitted May 3, 1976.

This material is protected by copyright registered in the name of Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission of the publisher. A copy of this article is available from the publisher for \$7.50.