

## PHENOLIC COMPOUNDS OF *Rhus typhina*

AND *R. aromatica*

I. Sh. Buziashvili, N. F. Komissarenko,  
and D. G. Kolesnikov

UDC 547.972

In preceding papers [1-3] the results have been given of an investigation of the polyphenolic compounds of the leaves of *Rhus coriaria* L. (Sicilian sumac) and *Cotinus coggygria* Scop. (common smoketree). Continuing a study of the chemical composition of tannin-containing plants, we have investigated the leaves of *R. typhina* L. and *R. aromatica* Ait.

The results of two-dimensional chromatography of aqueous ethanolic extracts and also of qualitative reactions showed the presence in each species of not less than eight substances of phenolic nature, three of which were assigned to the phenolcarboxylic acid group and five to the flavonoids. The substances detected were separated as described previously [1, 2]. The following were isolated: gallotannin with  $[\alpha]_D^{21} +54.5^\circ$  (c 1; water),  $\lambda_{\max}$  277 nm (methanol); gallic acid,  $C_7H_6O_5$ , mp 250-251°C,  $\lambda_{\max}$  272 nm; and methyl gallate,  $C_8H_8O_5$ , with mp 157-158°C,  $\lambda_{\max}$  277 nm (methanol).

The flavonoid substances consisted of six compounds, and when they were separated on a column of polyamide sorbent the following glycosides were obtained and identified: myricetin 3-O- $\alpha$ -L-rhamnifuranoside,  $C_{21}H_{20}O_{12}$ , mp 185-189°C,  $[\alpha]_D^{21} -158^\circ$  (c 1; methanol); quercetin 3-O- $\beta$ -D-glucopyranoside,  $C_{21}H_{22}O_{12}$ , mp 217-219°C,  $[\alpha]_D^{21} -15^\circ$  (c 1; methanol); kaempferol 3-O- $\beta$ -D-glucopyranoside,  $C_{21}H_{20}O_{10}$ , with mp 215-225°C,  $[\alpha]_D^{21} -16^\circ$  (c 1; methanol), and three flavonoid aglycones - myricetin,  $C_{15}H_{10}O_8$ , mp 352-355°C, quercetin,  $C_{15}H_{10}O_7$ , mp 310-312°C, and kaempferol,  $C_{15}H_{10}O_6$ , mp 270-274°C. The latter was not found in the free state in the leaves of *R. aromatica*.

The quantitative determination of the polyphenolic compounds in the leaves of the species studied was performed by the chromatospetrophotometric method [4]. In the leaves of *R. typhina* were found 13.1% of tannin, 3.8% of free gallic acid, and 1.4% of combined flavonoid aglycones; and in the leaves of *R. aromatica* 11.5% of tannin, 2.84% of free gallic acid, and 1.74% of combined flavonoid aglycones. Thus, in their contents of gallotannins the species considered are close to the Sicilian sumac and common smoketree studied previously and are promising tannin-containing plants.

### LITERATURE CITED

1. I. Sh. Buziashvili, N. F. Komissarenko, and D. G. Kolesnikov, *Khim. Prirodn. Soedin.*, 627 (1970).
2. N. F. Komissarenko, I. F. Makarevich, and D. G. Kolesnikov, in: *Phenolic Compounds and Their Biological Functions* [in Russian], Moscow (1968), p. 78.
3. I. Sh. Buziashvili, N. F. Komissarenko, and D. G. Kolesnikov, *Abstracts of the Second Symposium on Phenolic Compounds* [in Russian], Alma-Ata (1970), p. 20.
4. I. Sh. Buziashvili, N. F. Komissarenko, and D. G. Kolesnikov, *Rast. Res.*, 8, No. 2, 237 (1972).

Khar'kov Scientific-Research Institute of Pharmaceutical Chemistry. Translated from *Khimiya Prirodnikh Soedinenii*, No. 4, pp. 555-556, July-August, 1973. Original article submitted February 6, 1973.

© 1975 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 \$15.00.