

RUTIN AND OTHER POLYPHENOLS OF
THE HERBAGE OF *Coriandrum sativum*

N. V. Sergeeva

UDC 547.972

The fresh herbage of *Coriandrum sativum* L. (coriander) collected in the phase before budding was extracted in the cold with acetone to exhaustion, and then the acetone was distilled off. The residual aqueous extract was treated first with benzene and then with ethyl acetate. The aqueous residue was transferred to a column of Kapron and eluted first with water and then with aqueous ethanol with increasing concentrations of ethanol. The fractions eluted with 20-30% ethanol contained a flavonoid which precipitated when the solvent was evaporated. It formed greenish-yellow crystals with mp 187-190°C (from aqueous ethanol, $C_{27}H_{30}O_{16} \cdot 2 \cdot H_2O$, $[\alpha]_D^{20} -30^\circ$ (c 0.50; ethanol). UV spectrum: λ_{max} 363, 258 nm (log ϵ 4.33, 4.41).

On acid hydrolysis of the flavonoid with 3% H_2SO_4 for 2 h, the aglycone, L-rhamnose, and D-glucose were obtained in equimolecular amounts (yield of aglycone 46.3%); on hydrolysis with 1% H_2SO_4 for 1 h the aglycone, rutinose, and small amounts of D-glucose and L-rhamnose were obtained. The sugars were identified chromatographically.

The aglycone formed yellow crystals with mp 309-313°C (decomp.). UV spectrum: λ_{max} 374, 257 nm (log ϵ 4.41, 4.36). On the basis of its spectroscopic characteristics and the absence of a depression of the melting point of a mixture with an authentic sample, the aglycone was identified as quercetin. The glycoside was identified by a mixed melting point as rutin.

The aqueous residue also yielded two phenolic acids: chlorogenic acid [UV spectrum: λ_{max} 330, 300 (shoulder), 245 nm; on acid and alkaline hydrolysis it formed caffeic and quinic acids] and caffeic acid [UV spectrum: λ_{max} 380, 300 (shoulder), 245 nm].

In addition to the substances mentioned, the herbage of coriander was shown by a known method [1] to contain not less than seven lactones of coumarin nature. This is the first time that rutin has been identified in the composition of coriander. The other polyphenols in the herbage of coriander have not been studied either. The coumarins umbelliferone and scopoletin have been found in the fruit [2].

LITERATURE CITED

1. G. K. Nikonov, M. G. Pimenov, and E. B. Zorin, *Rast. Res.*, 505 (1966).
2. T. Kartnig, *Fette, Seifen, Anstrichm.*, 68, 131 (1966).

Pyatigorsk Pharmaceutical Institute. Translated from *Khimiya Prirodnikh Soedinenii*, No. 1, pp. 94-95, January-February, 1974. Original article submitted June 26, 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.