

PRODUCTION OF RUTIN FROM THE AQUEOUS
MOTHER LIQUORS IN THE PROCESSING OF
FLOWER BUDS OF *Sophora japonica*

A. D. Latypov, M.-R. I. Shamsutdinov,
T. T. Shakirov, and M. S. Khagi

UDC 615.45:615.711.5

Rutin is produced from flower buds of the Japanese pagoda tree by extracting the raw material with hot water [1] and crystallizing it by cooling to 18-20° C. After the separation of the rutin, the mother solution is discarded. In a study of the composition of the mother solution it has been found to contain 1.7-1.8% of dry matter including an average of 0.12% of rutin.

The amount of aqueous mother liquor is 2500 liters for each 100 kg of raw material, and with a concentration of 0.12% of rutin in it the loss amounts to 3.0 kg, or 13-14% of the total amount in the raw material. This rutin cannot be isolated by crystallization methods.

We have investigated the possibility of isolating the rutin from the mother liquor on molecular and ionic sorbents. For this purpose 45 liters of the aqueous mother solution containing 1.7% of dry matter, of which 0.1% was rutin, was passed through a column 50 mm in diameter and 500 mm high filled with 500 g of polyamide sorbent [2]. Then the column was washed with water and eluted with 30 liters of methanol, the eluate being concentrated to a volume of 0.3 liter, diluted with an equal amount of distilled water, and cooled. The rutin that deposited was separated from the mother solution, crystallized from ethanol, and dried. This gave 30 g of pure rutin, or 67% of the amount of it present in the mother liquor.

An aqueous mother solution (41 liters) of the same composition was passed through a column 50 mm in diameter and 500 mm high filled with 750 g of AN-1 anion-exchange resin in the OH form, after which it was washed with distilled water and eluted with 8 liters of 30% caustic soda solution. The eluate was neutralized with 20% hydrochloric acid to pH 7. The rutin that deposited was separated off, washed with water, crystallized from ethanol, and dried. This gave 15 g of pure rutin, or 37% of its amount in the mother solution.

Thus, 37-67% of the rutin present in a mother solution can be isolated from it by sorption on molecular and ionic sorbents, which, under factory conditions, provides the possibility of obtaining an additional 1.0-1.2 tons of this material per year.

LITERATURE CITED

1. E. F. Fedorovich, N. A. Vedenev, and S. A. Zokhre, *Med. Prom. SSSR*, No. 10, 33 (1958).
2. V. I. Litvinenko, N. P. Maksyutina, and D. G. Kolesnikov, *Med. Prom. SSSR*, No. 3, 40 (1962).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from *Khimiya Prirodnikh Soedinenii*, No. 3, pp. 427-428, May-June, 1975. Original article submitted December 4, 1974.

©1976 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.