

QUANTITATIVE DETERMINATION OF THE
FUROCOUMARINS IN THE PREPARATION
"PSOBERAN" BY GAS - LIQUID CHROMATOGRAPHY

Ya. I. Éidler, G. L. Genkina,
and T. T. Shakirov

UDC 543.544.5+547.587

The identification of furocoumarins by GLC is known from previous publications [1, 2]. In the present communication we propose a procedure for the quantitative determination of psoralen and bergapten in the preparation "psoberan" by this method on a "Tsvet-4" chromatograph with a flame-ionization detector. Stainless steel column (30 cm long and 2 mm in diameter) filled with 5% of SE-30 on Chromoton NAWDMCS (0.16-0.200 mm). Rate of flow of carrier gas 20 ml/min, thermostat temperature $174 \pm 1^\circ\text{C}$, evaporator temperature 280°C .

The quantitative calculation was performed by the method of an internal standard, as which osthol was used. The calibration factors (1.0 for psoralen and 1.33 for bergapten) were calculated by a known formula [3] and from these the amounts of psoralen and bergapten in artificial mixtures were calculated. The relative error of the determination of psoralen amounted to $\pm 3.84\%$ and of bergapten $\pm 2.86\%$.

The table gives the total amount of furocoumarins and the amount of each component in four samples of the preparation "psoberan."

The results of the analyses agreed with those obtained by the well-known chromatofluorometric method [4].

TABLE 1

Batch No.	Total		Psoralen		Bergapten		Results of the chromatofluorometric method [4] for			
	taken	found	found		found		psoralen	bergapten	total	
	mg		%		mg \pm e	%	mg \pm e	%	%	
1	2,80	2,72	97,2	$2,01 \pm 0,37$	71,7	$0,71 \pm 0,03$	25,5	72,1	25,5	97,6
2	5,00	4,84	96,6	$3,81 \pm 0,42$	76,0	$0,03 \pm 0,081$	20,6	75,6	21,8	97,4
3	2,16	2,15	99,8	$1,58 \pm 0,098$	73,0	$0,57 \pm 0,06$	26,8	73,3	26,1	99,4
4	2,60	2,50	96,4	$1,81 \pm 0,037$	69,7	$0,69 \pm 0,06$	26,7	74,0	24,0	98,0

LITERATURE CITED

1. T. Furuya and H. Kojima, *J. Chromat.* **29**, 382 (1967).
2. T. A. Kuznetsova, *Khim. Prirodn. Soedin.*, 406 (1970).
3. L. D. Litvinov and B. A. Rudenko, *Gas Chromatography in Biology and Medicine* [in Russian], Moscow (1971), p. 74.
4. B. Z. Usmanov, A. U. Kasymov, and N. K. Abubakirov, *Khim. Prirodn. Soedin.*, 473 (1969).

Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR. Translated from *Khimiya Prirodnikh Soedinenii*, No. 1, pp. 86-87, January-February, 1974. Original article submitted June 29, 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.