

OIL OF THE SEEDS OF THE COTTON PLANT OF VARIETY AN-401

K. Kodyrov, T. V. Chernenko,
and A. U. Umarov

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We have investigated the oil of the seeds of a new wilt-resistant variety of cotton, AN-401, isolated by workers of the Institute of Experimental Plant Biology of the Academy of Sciences of the Uzbek SSR and grown by the cotton-planting farms of Uzbekistan [1]. The weight of 1000 seeds was 113.27 g, and the oil content on the absolutely dry matter 22.71%. The color of the oil in a 1-cm layer according to the VNIIZh [All-Union Scientific-Research Institute of Fats] was 9.3 red units and 35 yellow. Table 1 gives the physical and chemical indices of the oil and the fatty acids.

The oil was found to contain cyclopropenoid fatty acids, the amount of which, determined by the method of Harris et al., was 1.06%. The methyl esters of the fatty acids were subjected to GLC on a UKh-2 instrument. Since on GLC the cyclopropenoid fatty acids issue in a single peak with the linoleic acid, knowing the amount of cyclopropenoid acids it is not difficult to calculate the fatty-acid composition of the oil:

Acid	Amount, %	Acid	Amount, %
Myristic	1.01	Oleic	16.59 ¹
Palmitic	24.71	Linoleic	53.63
Palmitoleic	1.74	Cyclopropenoid	
Stearic	1.26	fatty acids	1.06

The triglyceride composition was determined by enzymatic hydrolysis [3].

Triglycerides	Amount, %	Triglycerides	Amount, %
GISSS	0.45	GISUS	14.89
GISSU	1.36	GISUU	46.26
GIUSU	1.06	GIUUU	35.98

In comparison with the well-known variety 108-F, the oil of the AN-401 cotton plant is distinguished by an increase content of palmitic acid (24.7%) and by a higher oil content of the seeds (22.7%). Our figures for the oil content of the seeds and for the fatty-acid composition do not agree with the indices given for this variety in a previous paper [1].

TABLE 1

Index	Units of measurement	Oil	Fatty acids
Density, d_4^{20}	g/ml	0,9145	—
Absolute viscosity $[\eta]^{20}$	poise	0,73	—
Refractive index, n_D^{20}	—	1,4670	—
Acid No.	—	1,55	—
Saponification No.	mg of KOH/g	190,33	—
Iodine No.	% I ₂	102,78	113,01
Hehner No.	—	92,86	—
Unsaponifiables	%	1,35	—
Amount of phosphatides in the oil	—	0,55	—
Neutralization No.	mg of KOH/g	—	202,01
Mean mol. wt. of the fatty acids	—	—	277,78
Amount of gossypol by the aniline-pyridine method	%	0,62	—

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