

## BRIEF COMMUNICATION

SEED LIPIDS OF FOUR SPECIES  
OF THE FAMILY ONAGRACEAEN. T. Ul'chenko, A. I. Glushenkova,  
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UDC 547:915:665:3

The family Onagraceae includes more than 500 plant species combined into 36 genera. Plants of this family grow in the temperate climate zone: Central America and Mexico. On the territory of the former USSR the genus *Epilobium* is the most widespread, but the introduced genera *Onagra* and *Oenothera* are also found [1]. In the Flora of Uzbekistan it is reported that representatives of the genus *Onagra* are cultivated as decorative plants [2]. Plants of the genera *Onagra* and *Oenothera* are attracting the attention of researchers by the fact that their seed oils contain the very active essential 18:3 (6,9,12) fatty acid —  $\gamma$ -octadecatrienoic acid —, which is a precursor of prostaglandin E<sub>1</sub> and its derivatives [3].

We have studied the seed lipids of four *Oenothera* species: *O. biennis*, *O. lamarekiana*, *O. tetraptera*, and *O. roseae*, which have been introduced into the Tashkent botanical garden. The oil contents of the seeds, determined in a Soxhlet apparatus [4], amounted to 23.8, 24.7, 18.6, and 26.3% by weight, respectively.

Analysis of the total neutral lipids extracted by hexane (TLC on silica gel with the solvent systems hexane—diethyl ether (7:3) and (1:1)) showed the presence of 7—8 classes in each of the specimens investigated — hydrocarbons, triacylglycerides, epoxyacyldiacylglycerides, free fatty acids, hydroxyacyldiacylglycerides, diacyl- and monoacylglycerides, and free sterols. The fatty acids of the plants investigated, isolated by mild alkaline hydrolysis [5], were analyzed on a Chrom-41 instrument with a flame-ionization detector, using a 4 × 2000 mm column filled with PEGS on Chromaton W, at 198 °C (Table 1).

TABLE 1. Fatty Acid Compositions of the Seed Lipids of Plants of the Onagraceae Family, % GLC

Plant of the genus <i>Oenothera</i>	Fatty acid*							
	14:0	16:0	16:1	18:0	18:1	18:2	$\gamma$ -18:3	$\alpha$ -18:3
<i>O. biennis</i>	0.1	4.8	0.2	2.5	22.8	64.2	5.4	-
<i>O. lamarekiana</i> <sup>1)</sup>	0.8	7.1	1.1	2.2	18.6	62.5	6.3	-
<i>O. tetraptera</i> <sup>2)</sup>	0.1	6.3	3.2	1.9	13.6	68.8	5.5	Tr.
<i>O. roseae</i>	0.2	7.9	0.2	2.9	8.7	78.6	-	1.5

\*Also present: 1) 17:0 — 1.4%; and 2) 20:0 — 0.3%.

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As can be seen, the sets of fatty acids were practically identical in all the specimens, the main components being the 18:1 and 18:2 acids, amounting to more than 80% of their weight.  $\gamma$ -Octadecatrienoic acid was found in three of the *Oenothera* species. We determined the levels of this acid in the seed lipids of four specimens of *O. biennis* gathered in different years. It ranged between 5.4 and 6.8%.

## REFERENCES

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