

## BRIEF COMMUNICATIONS

### HYDROCARBONS OF THE LEAVES OF *Yucca gloriosa*

T. A. Pkheidze and L. N. Gvazava

UDC 547.916

In the production of tigogenin - an intermediate in the synthesis of steroid hormones [1] - the presence has been established of accompanying substances close in polarity to tigogenin and affecting the quality of the finished product [2]. These substances are also usually found in leaf extracts obtained with organic solvents.

By repeated column chromatography on alumina and silica gel (Czechoslovakia, 100 × 160) we have isolated from technical tigogenin two fractions of substances in the form of gel-like and waxy masses belonging to the class of hydrocarbons. The first fraction amounted to an average of 7.5% and the second 0.027%, calculated on the technical product.

On TLC with revelation by iodine vapor the substances gave white spots. In their IR spectrum ( $\lambda_{\max}$  KBr) there were absorption bands at 1490, 2870, and 2950  $\text{cm}^{-1}$ , which are characteristic for hydrocarbons [3]. The PMR spectrum (60 MHz,  $\text{CDCl}_4$  [sic],  $\delta$ , ppm; 0 = HMDS) contained signals with chemical shifts ( $\delta$ ) of 0.66 (3H,  $\text{CH}_3$ ) and 1.05 (2H,  $\text{CH}_2$ ), which also confirmed that they belonged to the class of hydrocarbons [4].

The fractions isolated were subjected to gas-chromatographic analysis on a Hewlett-Packard, model 5840 A, instrument with a glass capillary column (50 m) containing OV-101. Flame-ionization detector. Programming regime 100 → 280°C, 10°C/min.

Hydrocarbons from  $\text{C}_9$  to  $\text{C}_{29}$  were identified in the first fraction, their relative amounts in the sample analyzed being (%):  $\text{C}_9$  - 0.43;  $\text{C}_{10}$  - 1.15;  $\text{C}_{11}$  - 0.32;  $\text{C}_{12}$  - 1.46;  $\text{C}_{13}$  - 0.34;  $\text{C}_{14}$  - 0.30;  $\text{C}_{15}$  - 1.84;  $\text{C}_{16}$  - 0.63;  $\text{C}_{17}$  - 5.30;  $\text{C}_{18}$  - 4.90;  $\text{C}_{19}$  - 9.16;  $\text{C}_{20}$  - 9.46;  $\text{C}_{21}$  - 16.05;  $\text{C}_{22}$  - 15.03;  $\text{C}_{23}$  - 10.16;  $\text{C}_{24}$  - 7.62;  $\text{C}_{25}$  - 6.52;  $\text{C}_{26}$  - 0.71;  $\text{C}_{27}$  - 3.75;  $\text{C}_{28}$  - 4.81.

The second fraction (a powder with mp 80-82°C) consisted of a mixture of normal paraffins with from 30 to 41 carbon atoms in their molecules and had the following quantitative composition (%):  $\text{C}_{30}$  - 22.82;  $\text{C}_{31}$  - 5.74;  $\text{C}_{32}$  - 0.16;  $\text{C}_{33}$  - 0.65;  $\text{C}_{34}$  - 1.74;  $\text{C}_{35}$  - 3.76;  $\text{C}_{36}$  - 6.55;  $\text{C}_{37}$  - 5.67;  $\text{C}_{38}$  - 13.74;  $\text{C}_{39}$  - 7.70;  $\text{C}_{40}$  - 24.95;  $\text{C}_{41}$  - 6.50.

Thus, the  $\text{C}_{19}$ - $\text{C}_{24}$  and  $\text{C}_{30}$  and  $\text{C}_{40}$  hydrocarbons predominate in the leaves of mound-lily yucca. This is the first time that a study has been made of the hydrocarbons of this plant.

#### LITERATURE CITED

1. É. P. Kemertelidze and T. A. Pkheidze, *Khim.-Farm. Zh.*, 44 (1972).
2. T. A. Pkheidze and É. P. Kemertelidze, *Khim.-Farm. Zh.*, 127 (1976).
3. E. V. Ermilova, E. A. Krasnov, and G. Z. Khanin, *Khim. Prir. Soedin.*, 598 (1987).
4. K. W. Bentley, *The Techniques of Organic Chemistry. Elucidation of the Structure of Organic Compounds by Physical and Chemical Methods* (Vol. XI of *Technique of Organic Chemistry*), Interscience, New York (1963); [Russian translation, *Khimiya*, Moscow, Book 1 (1967), p. 532].

---

I. G. Kutateladze Institute of Pharmacokinetics, Academy of Sciences of the Georgian SSR, Tbilisi. Translated from *Khimiya Prirodnikh Soedinenii*, No. 4, p. 578, July-August, 1991. Original article submitted June 21, 1990; revision submitted January 30, 1991.