By determining the structure of olitoribiose we have finally confirmed the structure of olitoriside as strophanthidin 3-(β-D-boivinopyranosido-β-D-glucopyranoside).

REFERENCES

1. N. K. Abubakirov, V. A. Maslennikova, and M. B. Gorovits, ZhOKh, **28**, 2279, 1958; **29**, 1235, 1959.
2. R. Kuhn, H. Trischmann, and J. Löw, Angew. Chem., **67**, 32, 1955.
3. R. Tschesche, H. J. Wulff, and G. Snatzke, Naturwissen., **46**, 109, 1959. [4] R. Reeves, J. Amer. Chem.
4. R. Reeves, J. Amer. Chem. Soc., **73**, 957, 1951; Advances Carbohydr. Chem., **6**, 107, 1951.

16 May 1968

Institute of the Chemistry of Plant Substances AS UzSSR

UDC 547.597+ 547.918

AMORPHIGENIN β-D-GLUCOSIDE FROM AMORPHA

A. U. Kasymov, E. S. Kondratenko, and N. K. Abubakirov

Khimiya Prirodnykh Soedinenii, Vol. 4, No. 5, pp. 326-327, 1968

We have studied by chromatography ten species of plants of the genus Amorpha in order to ascertain the presence in them of amorphin and amorphigenin. Amorphin has previously been obtained preparatively from seven species [1]. Amorphigenin has been detected chromatographically in the same species. Later, amorphin and amorphigenin were also found in A. nana, A. croceolanata, and A. caroliniana.

Extracts of all the species of seeds of Amorpha studied were chromatographed in a thin layer of silica gel in the benzene–methanol (4 : 1) system. In addition to others, a substance was detected giving a spot with a R_f value intermediate between those of amorphin and amorphigenin.

When a dry chloroform–methanol (9 : 1) extract from the seeds of Amorpha was separated on a column of silica gel in the system mentioned, we succeeded in isolating this substance, with the composition $C_{29}H_{34}O_{12}$, mp 164° C, $[\alpha]_D^{20}$ −122° (c 0.1; ethanol), which showed the reactions characteristic for rotenoids.

Hydrolysis of the new compound with 20% sulfuric acid led to the formation of D-glucose and an aglycone with mp 191°–192° C, $[\alpha]_D^{20}$ −138° (c 0.1; ethanol), identical in physicochemical properties with the 24-hydroxyrotenone (amorphigenin) $C_{23}H_{22}O_4$ that we have studied previously [2].

To determine the dimensions of the oxide ring of the glucose and the configuration of the glycosidic linkage, the differential spectrum of the carbohydrate component of the glycoside was recorded on a UR-10 instrument. An equimolar amount of amorphigenin (in KBr) was previously placed in the comparison channel of the spectrometer.

In the analysis of the differential IR spectrum, three strong absorption bands were found in the 1100–1010 cm^{-1} region (1048, 1085, and 1100 cm^{-1}), these being characteristic for pyranosides [3]. The band at 893 cm^{-1} shows the β-configuration of the glycosidic linkage.

The difference in the molecular rotation of the glycoside ($[M]_D$ −698°) and of amorphigenin ($[M]_D$ −556°) is −132°. For methyl α-D-glucopyranoside, ($[M]_D$ −698° [4]. These results also confirm the β-configuration of the glycoside.

On the basis of what has been said, it may be concluded that the new rotenoid glycoside has the structure of 24-hydroxyrotenone β-D-glucopyranoside.

REFERENCES

1. E. S. Kondratenko and N. K. Abubakirov, DAN UzSSR, no. 10, 35, 1960.
2. E. S. Kondratenko, A. U. Kasymov, and N. K. Abubakirov, KhPS [Chemistry of Natural Compounds], 3, 307, 1967.
33. I. V. Kovalev and V. I. Litvinenko, KhPS [Chemistry of Natural Compounds, **1**, 233, 1965.
4. Tollens-Elsner, Short Handbook on the Chemistry of Hydrocarbons [Russian translation], Moscow-Leningrad, pp. 285, 290, 1938.

20 May 1968

Institute of the Chemistry of Plant Substances AS UzSSR