OLIGOSACCHARIDES OF *Passiflora incarnata*

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UDC 547.917

We have previously reported a study of the components of *P. incarnata* L. [1-3]. The present paper gives the results of an investigation of the free sugars of this plant.

The comminuted fresh roots (1 kg) were extracted with boiling methanol (4 × 4 liters). The extract was concentrated to 0.5 liter, 0.5 liter of acetone was added, and the mixture was filtered and was left at room temperature. Crystals separated out which, after four days, were filtered off and dried. This gave 49.4 g of product (4.94% of the weight of the dry roots). By paper chromatography (PC) [butan-1-ol—acetic acid—water (4:1:5) system; chromogenic agent aniline phthalate] it was found that it consisted of the combined free sugars, comprising four substances.

This material (10 g) was separated on a column of polyamide (h = 50 cm, d = 4 cm) elution being begun with ethanol—water (10:1) and the concentration of water being gradually increased. This gave two substances: A and B.

Substance A, $C_{18}H_{32}O_{16}$, mp 77-79°C, $[\alpha]_D^{20}$ +110.5° (c 0.1; water) appeared on PC (same system) at the level of raffinose on acid hydrolysis the substance gave D-glucose, D-galactose, and D-fructose. Consequently, compound A is raffinose.

Substance B, $C_{12}H_{22}O_{11}$, mp 183-184°C, $[\alpha]_D^{20}$ +69.4° (c 0.1; water). The products of its acid hydrolysis were found to contain D-glucose and D-fructose. On PC (in the same system) it appeared at the level of an authentic sample of sucrose. Thus, substance B was identified as sucrose.

The remaining two sugars were identified by PC as D-glucose and D-fructose. It was found by the same method that all four sugars accumulate in the leaves, fruit, and stems of *Passiflora incarnata*.

In all parts of the plant the dominating sugars are raffinose and sucrose. From the size of the spots on PC it can be judged that the D-glucose is present in the smallest amount.

LITERATURE CITED

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Tbilisi State Medical Institute. Translated from Khimiya Prirodnykh Soedinenii, No. 1, pp. 84-85, January-February, 1975. Original article submitted June 28, 1974.