

CHEMICAL COMPOSITION OF THE BARK OF ROOTS OF *Maclura aurantiaca*.

XANTHONES

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From the bark of the roots of osage orange *Maclura aurantiaca* Nutt. family Moraceae we have isolated five substances which, from the combination of their physicochemical constants and spectral characteristics have been assigned to the class of prenylated xanthones.

The bark of the roots was extracted successively with petroleum ether (40-70°C) and diethyl ether. When the petroleum ether extract was concentrated, yellow needles of substance (I) deposited (mp 182-183°C, $C_{23}H_{22}O_6$, giving a diacetate with mp 194-195°C), which was identified as 4-(1,1-dimethylallyl)-1,5,6-trihydroxy-6',6'-dimethylpyrano[3,2:2'3']xanthone (macluraxanthone) [1].

After the separation of the macluraxanthone, the concentrated extract was chromatographed on silica gel, and the column was washed with petroleum ether containing increasing concentrations of ethyl acetate. In this way, another three xanthones (II, III, and IV) were isolated.

Substance (II), mp 218-219°C, $C_{18}H_{14}O_5$, M^+ 310, was identified as 1,6-dihydroxy-6',6'-dimethylpyrano[7,8:2',3']xanthone (tovoxanthone) [2].

Substance (III), mp 214-215°C, $C_{18}H_{14}O_5$, M^+ 310 was 1,5-dihydroxy-6',6'-dimethylpyrano[3,4:2',3']xanthone (6-deoxyjakareubin) [3].

Substance (IV), mp 155-156°C, $C_{23}H_{24}O_6$, triacetate with mp 210-211°C, was identified as 2-(1,1-dimethylallyl)-8-(3,3-dimethylallyl)-1,3,5,6-tetrahydroxyxanthone (alvaxanthone) [4].

The amount of xanthones in the petroleum ether extract was small. The bulk of them was obtained when the bark was extracted with the diethyl ether. In the ethereal extract one more xanthone (V), not detected in the petroleum ether extract, was isolated.

Substance (V), mp 264-265°C, $C_{18}H_{14}O_5$, monoacetate with mp 202-203°C, was 6',6'-dimethyl-1,7-dihydroxypyran[3,2:2',3']xanthone (osajaxanthone) [5].

The amount of the main xanthone of the bark of the roots of osage orange (macluraxanthone) was 0.19% (on the dry weight of the bark). The other xanthones were present in the following amounts (%): alvaxanthone, 0.06; osajaxanthone, 0.02; 6-deoxyjakareubin, 0.006; tovoxanthone, 0.001.

We are the first to have detected 6-deoxyjakareubin and tovoxanthone from the bark of the roots of osage orange.

LITERATURE CITED

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