

BRIEF COMMUNICATIONS

CINNAMIC ACIDS OF THE FRUIT OF *Viburnum sargentii*

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UDC 615.032

A preliminary chromatographic analysis of the fruit, bark, and leaves of Sargent cranberry bush (*Viburnum sargentii*) Kohene showed the presence of cinnamic acid derivatives in the organs investigated.

To isolate the phenolcarboxylic acids from the fruit of a far-eastern species of *Viburnum*, a weighed sample of the air-dry comminuted raw material was extracted with 80% ethyl alcohol in a ratio of 1:10. The resulting extract was evaporated to small volume and was diluted with boiling water. The aqueous solution was filtered through a paper filter. The filtrate, after cooling, was treated in a separatory funnel with ethyl acetate (6 × 300 ml).

The evaporated ethyl acetate fraction was deposited on a column of polyamide sorbent. Elution was performed with water, and mixtures of water with ethanol in which the concentration of the latter was gradually increased to 20%. Fractions with a volume of 100 ml were collected and analyzed by paper chromatography. The combined fractions were evaporated and subjected to additional treatment to isolate individual compounds. As a result we isolated four cinnamic acid derivatives (1-4).

Substance (1), composition $C_{16}H_{18}O_{10}$, formed tabular crystals with mp 204-206°C $[\alpha]_D^{20} - 31.6^\circ$ (c 1.0; methanol), $\lambda_{max}^{CH_3OH}$ 245, 325 nm. Alkaline hydrolysis gave equimolar amounts of caffeic and quinic acids, which was confirmed chromatographically [1]. On the parallel chromatography of substance (1) and an authentic sample of chlorogenic acid their R_f values were found to be completely identical, and a mixture of the two compounds gave no depression of the melting point, which permitted substance (1) to be identified as chlorogenic acid.

Substance (2), composition $C_{16}H_{18}O_9$, amorphous, $[\alpha]_D^{20} + 3.6^\circ$ (c 1.0; methanol), $\lambda_{max}^{CH_3OH}$ 245, 325 nm. Alkaline hydrolysis yielded caffeic and quinic acids. When compound (2) was chromatographed with an authentic sample of neochlorogenic acid, a single spot was obtained. On this basis, substance (2) was identified as neochlorogenic acid.

Substance 3, composition $C_9H_8O_4$, yellow crystals, mp 194-196°C, $\lambda_{max}^{CH_3OH}$ 245, 325 nm. On the basis of a chromatographic comparison with an authentic sample of caffeic acid and the absence of a depression of the melting point of a mixed sample, substance (3) was identified as caffeic acid.

Substance 4, composition $C_9H_7O_3$, light pink crystals, mp 210°C, $\lambda_{max}^{CH_3OH}$ 228, 310 nm. As the result of a chromatographic comparison and a determination of the melting point of a mixture with an authentic sample, substance (4) was identified as *p*-coumaric acid.

This is the first time that all the compounds identified have been isolated from Sargent cranberry bush.

REFERENCE

1. L. I. Dranik and V. T. Chernobai, Rast. Res., 14, 250 (1967).