

SHORT COMMUNICATION

CYANIDIN 3-XYLOSYL GALACTOSIDE, AN ANTHOCYANIN FROM *ARALIA ELATA* AND *ARALIA CORDATA*

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Abstract—The anthocyanin in red autumnal leaves of *Aralia elata* Seem was identified as cyanidin 3-xylosylgalactoside. This rare pigment was also found in young sprouts and ripened berries of *A. elata*, and in shoots and ripened berries of *A. cordata* Thunb.

IN THE course of a chromatographic survey of the pigments in red autumnal leaves, which usually contain cyanidin 3-glucoside,^{1,2} an uncommon anthocyanin was detected in *Aralia elata* (Araliaceae). A large-scale isolation was achieved, using an Amberlite CG-50 (H⁺) column, removal of phenolic contaminants on a powdered polyamide column and final purification on a powdered cellulose column chromatograph. Spectral data showed that the pigment was a cyanidin 3-glycoside and that it did not have an acyl group.³ Acid hydrolysis gave cyanidin, galactose and xylose. Partial hydrolysis with methanolic 5 per cent HCl gave an intermediate, identified as cyanidin 3-galactoside by co-chromatography with an authentic specimen,⁴ and with 20 per cent acetic acid it gave a disaccharide (xylosylgalactose). H₂O₂ oxidation also released the same disaccharide, which had the molar ratio,⁵ galactose/xylose, of 1.00/0.92 and was identical with lathyrrose prepared from the anthocyanins of the sweet pea petals (*Lathyrus odoratus* L. var. Jimmy (New Cuthbertson)). The disaccharide must therefore be located at the 3-position of the aglycone,⁶ so that the pigment is a cyanidin 3-xylosylgalactoside. Similarly, the presence of the cyanidin 3-xylosylgalactoside was confirmed in sprouts and ripened berries of *A. elata* and shoots and berries of *A. cordata*. Cyanidin 3-xylosylgalactoside or cyanidin 3-lathyrside (sugar-sugar linkage: $\beta 1 \rightarrow 2$) is a rare pigment, having previously only been reported in the sweet pea *L. odoratus* (Leguminosae).⁷

¹ S. SAKAMURA, K. KAWANO and Y. OBATA, unpublished data.

² K. HYASHI and Y. ABE, *Bot. Mag. Tokyo* **68**, 299 (1955).

³ J. B. HARBORNE, *Biochem. J.* **70**, 22 (1958).

⁴ S. SAKAMURA and F. J. FRANCIS, *J. Food Sci.* **26**, 318 (1961).

⁵ J. B. PRIDHAM, *Anal. Chem.* **28**, 1967 (1956).

⁶ B. V. CHANDLER and K. A. HARPER, *Australian J. Chem.* **14**, 586 (1961).

⁷ J. B. HARBORNE, *Phytochem.* **2**, 85 (1963).