leaves suggests the possible disproportionation of one to the other noted earlier[10] for *P. balsamifera* bark. It is interesting to note that *P. balsamifera* leaves contained no salireposide whatsoever.

EXPERIMENTAL

Materials. Fresh leaves from a *P. balsamifera* tree cut in Langlade County, Wisconsin on June 17, 1968 were processed within a few hours with EtOH by the Waring Blendor procedure. *P. trichocarpa* leaves were stripped from trees in Pierce County, Washington on June 13, 1969, placed immediately into 95% EtOH, and processed a few days later by the Waring Blendor procedure.

Isolation and identification of components. The following crystalline components were isolated from the eluate fractions and identified by mixed m.p. and identity of IR spectra with authentic material indicated by reference: salicin[11], 1-*O*-*p*-coumaroyl-glucose,[12] tremuloidin,[11] trichocarpin,[13] tremulacin,[14] salireposide,[15] ω-salicyloylsalicin,[16] *d*-catechin,[6] and isoquercitrin.[6]

Chromatography of flavonoid components. Flavonoid components of eluate fractions were monitored by means of TLC on Polygram Cell developed with 30% AcOH and sprayed with ethanolic KOH. Plates were examined under visible and UV light before and after spraying.

The flavonoid glucosides were separated preparatively on Whatman 3M paper developed with the upper layer of 4:1:5 *n*-BuOH–AcOH–H_2O at 25°.

Acknowledgements—The authors wish to thank Mrs. Charlotte Robbins for her help in the processing and analytical monitoring required in this investigation.

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Phytochemistry, 1971, Vol. 10, pp. 2847 to 2848. Pergamon Press. Printed in England.

SAPINDACAE

CHEMICAL INVESTIGATION ON THE LEAVES OF *EUPHORIA LONGANA*

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(*Received* 15 *March* 1971)

Plant. Euphoria longana Lam. (Syn. *Nephelium longana* Cambess., Longan). Sapindaceae.

Uses. Medicinal.[1]

Previous work. On seeds,[2] stem and leaves.[3]

Leaves. Extracted with light petroleum, chloroform and ethanol.

Petroleum ether extract. This was chromatographed on alumina. Petroleum fraction on further purification by chromatography and crystallization afforded friedelin,[4] $C_{30}H_{50}O$

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(m.p., mixed m.p. $[\alpha]_D$, IR, TLC, oxime). Petroleum–benzene (1:1) fraction on rechromatography yielded 16-hentriacontanol, $C_{31}H_{64}O$ (m.p., mixed m.p.) and epifriedelinol,[5] $C_{30}H_{52}O$ (m.p., mixed m.p. $[\alpha]_D$, IR, m.p. and $[\alpha]_D$ of acetate). Benzene and benzene–ether (1:1) fractions yielded β-sitosterol,[6] $C_{29}H_{50}O$ (m.p., mixed m.p. and $[\alpha]_D$; m.p., mixed m.p. and $[\alpha]_D$ of acetate) and stigmasterol,[6] $C_{29}H_{48}O$ (m.p., mixed m.p. and $[\alpha]_D$; m.p., mixed m.p. and $[\alpha]_D$ of acetate).

Ethanol extract. The ethanolic extract concentrated, pulped, dried and exhaustively extracted with Et_2O. The Et_2O extract concentrated and kept in a refrigerator when greenish precipitate accumulated in the flask. The precipitate on repeated crystallization (decolourizing carbon) afforded stigmasteryl D-glucoside,[7] m.p. 290–293 (decomp.) (Liebermann–Burchard and Molisch test positive). The glucoside on hydrolysis with 4% H_2SO_4 yielded stigmasterol (m.p. and mixed m.p.) and D-glucose (identified by paper chromatography).

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Phytochemistry, 1971, Vol. 10, pp. 2848 to 2849. Pergamon Press. Printed in England.

SCROPHULARIACEAE

AN UNUSUAL ANTHOCYANIN IN *ANTIRRHINUM MAJUS*

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(*Received* 9 *June* 1970, *in revised form* 8 *January* 1971)

Abstract—In three genetic stocks of *A. majus*, cyanidin-3-glucoside has been found to occur along with the normal pigment, cyanidin-3-rutinoside.

THE ANTHOCYANINS of the garden snapdragon hitherto investigated are of two types, either cyanidin-3-rutinoside (antirrhinin) in the normal form (magenta or crimson flowers) or pelargonidin-3-rutinoside in the recessive mutant *eosinea* (pink or bronze flowers).[1,2] Other pigments, such as aurones and flavones, also contribute to the final flower colour, so that a large range of shades is possible.

RESULTS

Flowers from three lines (viz. an inbred derivative of the commercial variety 'Eclipse'; 'Black Prince'; and an inbred derivative of 'Pan Crimson') were investigated using TLC on cellulose. All three were found to contain a second anthocyanin which was purified by

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