

## ANTHOCYANIN PIGMENTS IN BEAN SEEDLINGS

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**Abstract**—Delphinidin 3-glucoside is the major pigment in hypocotyls of mung bean seedlings; malvidin and pelargonidin glycosides are present in lesser amounts. Malvidin 3,5-diglucoside is predominant in seedling hypocotyls of two varieties of bush bean and in stems of runner bean seedlings.

*Plants.* Red-pigmented seedlings of mung bean (*Phaseolus aureus* Roxb.); Royalty and (Black Wax cultivars of bush bean *P. vulgaris* L.); and Hammond's Dwarf runner bean (*P. coccineus* L.).

*Previous work.* Effect of aniline on pigmentation of mung bean.<sup>1</sup> Nature of pigments in pods, petals, and seed coats of bush and runner bean<sup>2</sup> and in cotyledons of mung bean.<sup>3</sup>

*Present work.* Nature of pigments in mung bean, and effect of aniline on pigmentation in bush and runner bean and nature of pigments in these two species.

*Mung bean.* Hypocotyls of 2–4 week old seedlings grown as before<sup>1</sup> excised and extracted with MeOH–1% HCl. After chromatographic separation, major pigment was identified as delphinidin 3-glucoside by hydrolysis and spectral and chromatographic comparison with authentic material. Traces of malvidin and pelargonidin glycosides were also detected.

*Bush bean and runner bean.* As with mung bean,<sup>1</sup> colour development of the seedlings was reduced following imbibition of 0.01 M aniline solution, that of Royalty by 50 per cent, that of Black Wax by 75 per cent. Runner beans were even more sensitive, pigmentation in the stem being 90 per cent reduced by imbibition of 0.01 M aniline. Extracts of all three seedlings yielded the same major pigment, identified by co-chromatography as malvidin 3,5-diglucoside (absorption max. 533 nm; hydrolysis gave malvidin 3-glucoside, malvidin and glucose).

<sup>1</sup> C. NOZZOLILLO, *Phytochemistry* **10**, 1011 (1971).

<sup>2</sup> J. B. HARBORNE, *Comparative Biochemistry of the Flavonoids*. Academic Press, London and New York (1967).

<sup>3</sup> J. T. PROCTOR, *Diss. Abstr.* **31**, 10-B (1970).

EXTRACTIVES OF *TIPUANA TIPU*\*

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