FLAVONOIDS OF THE FLOWERS OF
LEUCAENA GLAUCA

Leucaena glauca Bentham, (Leguminosae) is a small tree with globose heads of pale yellow flowers cultivated for its green manure. It is reported to cause loss of fertility and as worm repellant and fish poison. The seeds of the plant are employed for making fancy bags, baskets and ornaments. L. glauca contains an alkaloid lucenin, quercetin, quercetagetin, patuletin and isoquercitrin in the fresh flowers and isoorquetin in the cell free extracts. With a view to locating any additional flavonoid, the flowers of the plant have now been re-investigated and our results presented below.

Fresh flowers of L. glauca collected in Tiruchirapalli around the early part of summer were extracted with 80% alcohol twice by cold maceration and then once in the hot, under reflux. The combined extract was concentrated in vacuo and the aqueous concentrate successively partitioned with petroleum ether, peroxide-free ether and ethyl acetate. The petrol fraction on concentration did not yield any crystalline solid. The residue obtained from the ether fraction was dissolved in minimum amount of acetone and cooled in an ice-cristal for a few days when some yellow solid separated. On crystallisation from acetone this yielded yellow needles, m.p. 313-15 (decomp.), yield 0.02%. It was identified as quercetin by colour reactions, behaviour under UV and UV/NH3, Rf values, co-and mixed PC with an authentic sample and preparation and mixed m.p. of its pentacetate and pentamethyl ether. The mother liquor after removal of the above flavonol was examined on PC and the presence of another flavonol was indicated. This was identified as quercetagetin by its characteristic colour reactions and fluorescence under UV and UV/NH3 and Rf. The residue from the ethyl acetate fraction was taken up in acetone and left in ice-cristal for a few days. The yellow solid which separated, gave yellow needles on repeated recrystallisation from aqueous alcohol, m.p. 236-38 (yield, 0.2%), log E = 76°, λ max (McOH) 257, 360 nm giving bathochromic shifts of 50 nm with NaOMe, 75 nm with AlCl3, 43 nm with AlCl3/HCl, 17 nm with NaOAc and 15 nm with NaOAc/H2BO3 and answered all reactions for a flavonol-3-O-glucoside. It was hydrolyzed with 7% sulphuric acid in aqueous methanol for 2 hours when quercetin, m.p. 312-14° and galactose were obtained in equimolar ratio. The identity of the aglycone as quercetin was confirmed by co-and mixed PC with an authentic sample and by preparation of its pentacetate, m.p. and m.m.p. 193-95°. Similarly, the identity of the sugar as galactose was confirmed by direct comparison with an authentic sample and by preparing its osazone, m.p. 198-200°. The glycoside thus identified as quercetin 3-O-galactoside by colour reactions, co-chromatography and m.m.p. with an authentic sample of hyperoside.

It may be mentioned that we could not detect patuletin, reported to be present in the petals of L. glauca. Instead of quercetin-3-O-glucoside reported earlier, we have now isolated the corresponding 3-O-galactoside which may probably be due to ecological and biosynthetic variations. The isolation of flavonoids and flavonol-3-O-glycoside is in agreement with earlier observations that there are of common occurrence in the Leguminosae.

The authors thank Prof. P. Natarajan for his kind encouragement and interest in this work and the U.G.C. for financial assistance.

Department of Chemistry, R.M. RANGANATHAN.
Autonomous Post-Graduate Centre, S. NAGARAJAN.*
University of Madras,
Tiruchirapalli 620 020,
November 5, 1979.

* For correspondence.