RESEARCH NOTE

ANTHOCYANIN PIGMENTS OF YOUNG FLUSHES OF CINNAMON

A cinnamon tree in full flushing is a sight to behold owing to the beautiful coppery red to purple colour of the juvenile leaves. Interestingly, many of the wild cinnamons such as *C.malabatrum* the most common species of *Cinnamomum* distributed in the peninsular India produce only coloured juvenile leaves while in *C. verum* alone the juvenile leaves are coloured either green or purple. A correlation between the flush colour and essential oil content has been reported by Krishnamurthy *et al.* (in press), thereby making the character an important one that can be used in selection programmes.

Cinnamon produces juvenile leaves (flushes) during monsoon season (June-July) and again in December-January prior to flowering. The juvenile leaves are either green or purple covering the entire emerging leaves or purple restricted to a part of the leaf. A study was undertaken to characterise the pigments that contribute to the purple or coppery red colour of the juvenile leaves. It is well known that attractive colours to flowers. fruits and young leaves are imparted mainly by anthocyanins. The biological role of these anthocyanin pigments is not very much understood though in flowers they are associated with pollination by insects.

Young leaves from *C. verum* were immediately excised into methanol-hydrochloric acid (1% v/v) as per the method of Markham (1982). Thin layer chromatography of crude methanolic extracts of cinnamon was carried over on cellulose (0.5 mm thickness) (Sigmacel Sigma Chemical Co., USA) with solvent system comprising of n-butanol, acetic acid and water (6:1:2 upper layer). Preparative TLC was carried out on cellulose (2 mm thickness) and subjected to visible and UV spectroscopy from 750-360 nm, respectively. Sugar moiety was characterized after acid hydrolysis by TLC and co-chromatography with known standards and standard mixture (Markham, 1982) using the solvent system n-butanol ; benzene : pyridine : water (5:1:3:3). Visualization was accomplished by the method of Touchstone and Dobbins (1978).

Developed chromatogram when exposed to long wave uv gave a fluorescent pink spot at rf 0.4, which changed to blue under ammonia + uv, thereby indicating its anthocyanin nature. Co-chromatography with cyanin extracted from red rose (Hiroake *et al* 1986) confirmed the presence of cyanidin class of anthocyanins. Visible and ultra violet scan of the purified fraction gave a sharp absorption maximum at 523 nm in visible region which indicates the presence of cyanidin glycoside (Markham, 1982).

Analysis of the sugar moiety revealed glucose, xylose and galactose indicating the occurrence of three cyanidin .glycosides. Uv scanning spectra coupled with regenerated sugars by TLC indicate that the anthocyanin glycosides present in the cinnamon flushes are cyanidin glucoside, cyanidin xyloside and cyanidin galactoside.

The linkages of the sugars to cyanidin and further confirmation of the sugar moiety by NMR and MS is being contemplated.

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