RESEARCH PAPER

INTERNATIONAL JOURNAL OF PROCESSING AND POST HARVEST TECHNOLOGY
Volume 2 | Issue 2 | December, 2011 | 98-101

Assessment of banana cultivars for pigment extraction from bracts, its suitability and stability as food colourant

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SUMMARY : Bracts from six commercial banana cultivars *viz.,* Grand Naine, Ney Poovan, Poovan, Karpuravalli, Red Banana and Virupakshi were used to extract and estimate the anthocyanin content, assess their antimicrobial properties and their suitability as food colourant. The results revealed that Red Banana recorded the highest anthocyanin, phenolic and flavonoid contents (89.73mg/ 100g bracts, 238.93 mg pyrocatachol per 100 ml and 333.37mg quercetin / 100 ml, 333.37mg quercetin / 100 ml, respectively). The anthocyanin extract from banana bracts exhibited antimicrobial activity against bacteria and fungi. Banana bract extract in amla squash showed the highest stability under refrigerated condition (8°C) for 28 days, as observed from the lowest degradation rate (12.91%).

How to cite this paper: Preethi, P. and Balakrishnamurthy, G. (2011).Assessment of banana cultivars for pigment extraction from bracts, its suitability and stability as food colourant, *Internat. J. Proc. & Post Harvest Technol.,* **2** (2) : 98-101.

Research chronicle : Received : *18.07.2011;* **Sent for revision :** *28.09.2011;* **Accepted :** *27.11.2011*

KEY WORDS : food colourant, Pigment extraction, Bracts, anthocyanin, Total phenolics, Total flovonoids

Colour is one of the most important qualities of foods and food colour determinants the acceptance of a food item. The advent of synthetic dyes caused rapid decline in the use of natural dyes, which were completely replaced by the former within a century (Singh and Singh, 2002). However, research has shown that synthetic dyes are suspected to release harmful chemicals that are allergic, carcinogenic and detrimental to human health. But, natural dyes exhibit better biodegradability and have better compatibility with the environment. Now -a- days most foods are processed in some way or the other before reaching the consumer and manufactures have a need to replace colour lost during processing or to colour products which would otherwise be colourless and unappealing. With increasing public concern over the safety of synthetic colourants, natural colourants are assuming greater prominence.

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Anthocyanins are bright attractive colours, nontoxic and water soluble pigment. New sources of anthocyanins with high stability and low cost are desired characteristics as natural food colourant (Francis, 1975). The potential of plants as commercial sources of anthocyanin is generally limited. During banana harvest 300 kg of coloured bracts per hectare are disposed as residues. Since bracts of banana are widely available and has been traditionally used as food without toxic effect, they could be a potential source of anthocyanins.

EXPERIMENTAL METHODS

Assessment of banana cultivars for pigment extraction from bracts :

Banana male flowers buds of six commercial cultivars *viz.,* Grand Naine, Ney Poovan, Poovan, Karpuravalli, Red Banana and Virupakshi were collected from the germplasm maintained at orchard of Horticultural College and Research Institute, Coimbatore. The male buds were collected immediately after completion of female phase. The 8 whorls of coloured bracts were used for anthocyanin extraction.

Preparation of anthocyanin extract :

The anthocyanin was extracted using 0.15 per cent HCl in methanol (Rodriguez *et al.,* 1998). Five gram of bracts were ground and filtered on a filter paper (Wathman No.1).The filter cake residue was re-extracted until a