

PHYTOCHEMICAL EVALUATION

Anthocyanin of *Carissa carandas*¹

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ABSTRACTS

This work was an attempt to extract anthocyanin from ripe berries of *Carissa Carandas*. The maroon colored berries were de-pitted and the mesocarps were treated with acidic ethanol solution during the extraction procedure. The extraction method employed was similar to those used by Feluki and Francis (1968). As a comparison, anthocyanins of known sources such as fresh black grapes and morning glory flowers were extracted and used as reference pigments.

Qualitative studies of the crude anthocyanin extracts obtained, were carried out. These encompassed spectral and chromatographic studies. The berries were found to contain anthocyanins, and the results of the chromatographic studies suggested that they were delphinidin and cyanidin. However, petunidin may also be present. This work has demonstrated the potential of *Carissa carandas* as an exploitable source of anthocyanins. This merits further studies in order to put the plant in a wider and more significant perspective with respect to national and global interest in agro-based industries.

INTRODUCTION

Colour is one of the important quality attributes, which is measured for consumer acceptance of food product. The use of artificial colours has assisted development of the products. However, much doubts have been casted over the use of artificial colours with regards to public safety (Weissler, 1975). These have prompted research into natural colours/pigments and their properties.

Natural pigments, such as anthocyanins, seem to be an excellent alternatives to the synthetic colours. They are non toxic by nature. Moreover, they impart better colouration to the products. Anthocyanins seem to receive much attentions due to their abilities to impart interesting red, blue and violet colours, and as well as being an antioxidant themselves. *Carissa carandas* is recognised as an excellent ornamental and edge plant. Its is a hardy shrub with white fragrant flowers and maroon coloured berries when ripe.

Being a shrub, the harvest of the berries is easily managed. Moreover, pruning encourages new shoots which increases berries production. The crop may be suitably cultivated on tin-tailing lands, which offers good land reclamation and management.

MATERIALS AND METHODS

1. Sample preparation and pigment extraction.•Method of Fuleki and Francis (1968) was used in the extraction procedures. This involved the use of HCL acid and ethanol mixtures in ratio of 15:85(V/V), which was then filtered for subsequent analyses. As references, known sources of anthocyanin were extracted and used.

2. Spectral analyses.A diluted filtrate was scanned from 200 to 800 nm using UV-Vis spectrophotometer. The solution was further filtered through a glass filter prior to the scanning.

3. Chromatographic analyses.A mixture of buthanol, glacial acetic and water (BAW) in ratio of 4:1:5 was used as the mobile phase, while whatman paper no. 1 as the stationary phase.

RESULTS AND DISCUSSION

The UV spectra revealed the presence of anthocyanin pigments with the absorption maxima at 534 -537 nm and 280 - 281 nm. It is typical of the pigments (Harborne, 1967; Harborne and Baxter, 1993). However, extracts of cranberry, roselle (*H. sabdariffa*) and blackcurrant (Ribena) commercial juices showed little or no absorption at the two ranges of wavelength (Spectra are not included). It is probable that the processing of the juices may have destroyed the pigments. Spectra of the extracts of fresh black grape and morning glory flower seem to suggest the presence of the pigments as expected.

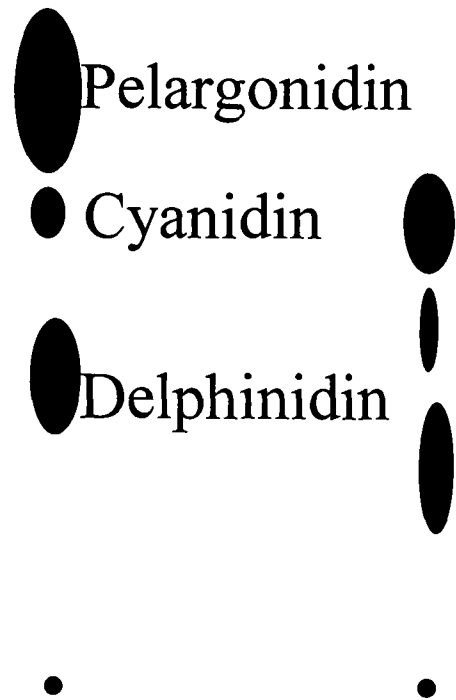
Chromatographic studies of the extract of *C. carandas* seem to suggest that the pigments were pelargonidin, cyaniding and delphinidin type of glycoside. These were concluded from comparison of the R_f values of the chromatograms (Carreno-Diaz and Luh, 1969 and Dekazos, 1970).

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Figure 1: Thin layer chromatograms of the *Carissa carandas* juice extracts

• BAW Forestal



• Anthocyanidins

• BAW 1% HCl



• Anthocyanins