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Some studies on the carotenoids and flabelliferins of Palmyrah fruit pulp

Palmyrah (*Borassus flabellifer L*) fruit pulp (PFP) is an underutilized resource. The main strategy put forward for bulk use is alcoholic fermentation of PEP. Critical among integrated utilization of PFP are the pectins, carotenoids and bioactive steroidal saponins called flabelliferins. The objective of this study was to determine carotenoid profile and its heat stability under fermentation conditions and heat the stability of flabelliferins.

The carotenoids were separated by MPLC and analysed by UV- visible absorption spectra and identified through visible spectroscopic data in the literature and standards. The carotenoids found naturally were α carotene, lycopene, zeta carotene and β – zeacarotene. This is reported for the first time. Treatment with Bakers yeast and heating (100 ^{o} C for 45 min, the conditions needed to recover alcoholic fermentation changed the structure of the natural carotenoids, forming oxygenated products of deeper colour of higher intensity.

Crude flabelliferins were isolated by dry cellulose chromatography and separated by TLC under the following conditions. (a) control (b) Heat at 75 ^{o}C for 6 hours (c) autoclaving (121 ^{o}C), 1050 Pa for min and (d) fermenting (c) with Bakers yeast. Results showed that only at 121 ^{o}C did flabelliferin profile change (but only slightly). Fermentation (18 h) resulted in a major change in flabelliferin profile including the appearance of the aglycone of the steroidal saponins.

Results indicate that fermentation of PFP will cause loss of carotenoids probably by oxygenation and also significant changes in flabelliferin profile, the latter probably by enzymes of yeast. This shows that if the flabelliferins and provitamin A activity of PFP are to be utilized they must be separated before the alcoholic fermentation step. The carotenoids however could be used as a food colour after fermentation.