

Title Isolation and stabilisation of natural pigments for food applications

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Abstract

Purpose of review: The review attempts to highlight the relevant aspects of the isolation and stabilisation techniques used for recovering natural pigments with excellent stability for myriad food applications.

Recent findings: With the recent understanding of the harmfulness of synthetic food colours, natural pigments are being increasingly emphasised and have achieved commercial significance due to the fact that consumers perceive them as safe additives. Besides aesthetics, pigments have potential physiological effects due to their potent antioxidant properties. Nevertheless, these exempt colours need to be used at higher levels than their synthetic counterparts, and their low stability in food applications pose a challenge to food manufacturers. The process of selecting of a natural colourant is most often influenced by factors such as the target shade, the physical/chemical attributes of the food matrix, stability to processing and storage conditions, and regulatory issues.

Directions for future work: Consideration needs to be given to the demands imposed on the industry by any changes to regulations with respect to safety issues. Continued advances in ingredient and processing technologies should see a vast array of stabilised colours in the future. Microencapsulation has great potential for protecting natural pigments, especially those that are sensitive to light. Stabilised pigments should be aimed at higher cellular uptake for effective nutraceutical benefits. Improved solubility, targetability and adhesion to tissues arise from nanosizing. In the case of plants that cannot be successfully cultivated or propagated, plant tissue cultures should be considered as an alternative method for the production of pigments. Exploring fungal chemical diversity might also be worthwhile for identifying new pigments. An intelligent screening approach, partly based on chemotaxonomy, will provide a platform for the future construction of cell factories for the production of natural water-soluble food colourants.