

Nutraceuticals in carrot – Valorization for functional beverages and new product development

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Interest in anthocyanins and anthocyanin rich products has been mainly because of their use as natural colorant and health promoting capacity. Anthocyanins have potent biological activities that produce multiple health benefits from protection of low-density lipoproteins from oxidation, protection against mutagens and carcinogens, suppression of inflammatory responses, to protection against age-related declines in cognitive behavior and neuronal dysfunction in the central nervous system. Black carrots (*Daucus carota* ssp. *sativus*) with their high anthocyanin content and extraordinary quality parameters still remain grossly underutilized in food applications. The present study entails various processing strategies for extraction of phenolic rich juice using enzyme assisted approach. Use of individual viscozyme and cellulase and in combination were found to dramatically increase juice yields and anthocyanin, phenolic content and total antioxidant activity in juice. Remarkable stability of black carrot anthocyanins in jamun, pomegranate and plum juice with non-acylated anthocyanins offers an opportunity to develop color stable and phytochemical stable functional beverage. Freeze dried powder and concentrate from black carrots was tested for its stability in muffins, bread and yoghurt. Muffin and bread incorporated with different levels of anthocyanins showed higher free radical scavenging activity and reducing power demonstrating its potential for developing functional baked goods high in health promoting phenolics. Results indicate that high nutraceutical quality of black carrot can be exploited to produce beverages, yoghurt and baked products with enhanced antioxidant capacity for consumer health.

Biography

Born on August, 3rd 1963, Dr Charanjit Kaur obtained her Ph.D from Indian Agricultural Research Institute in Horticulture in 1991, with specialization in Post Harvest Technology. She joined IARI as a scientist in 1991 and presently, she is a Principal scientist in the Division of Post Harvest Technology, IARI, and New Delhi. Her research interest includes nutraceuticals, functional foods and enzyme assisted processing for development of various fusion products based on anthocyanins from black carrots. She has systematically worked on the functional constituents of various horticultural crops for standardizing optimal processing conditions. Dr Kaur is the recipient of Gold medal for her outstanding academic performance during her postgraduate programme at IARI. She was also awarded FAO fellowship for an International training on "Quality assurance in food processing enterprises" at IAC, Wageningen Netherlands. She has postdoctorate International training at Bioactive Natural Products and Phytochemical Laboratory, at Michigan State University, USA. She has a teaching experience of 15 years and has guided 3 M.Sc and 3 Ph.D students and has made over 80 publications in peer reviewed journals, with high science citation index. She is also the recipient of J.C Anand award for outstanding contribution in field of Post Harvest technology. Her work on antioxidants in horticultural crops has won her number best poster award at various conferences including IFCON and recent at 7th India Nutra Summit.

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