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Unravelling the effect of extraction on anthocyanin functionality and prebiotic potential

Abstract:

Anthocyanins, considered as prebiotic ingredients for functional foods, were extracted from black soybean (BS), black grape (BG), black carrot (BCPm), and black rice (BR) using conventional solvent extraction (CSE) and microwave-assisted extraction (MAE). The study employed a split-plot design with CSE and MAE as main plot factors and anthocyanin extracts (AEs) as subplot factors. Anthocyanins were evaluated for stability (polymeric color, degradation index) and functionality (antioxidant capacity). Prebiotic potential on Lactobacillus rhamnosus, Lactobacillus acidophilus, Weissella confusa was assessed in fermented soymilk. MAE showed higher extraction yield than CSE in BG (3-fold), BS (2-fold), BCPm (1.2-fold), and BR (1.6-fold). Black grape (1255.76 mg/L) and black soybean (976.5 mg/L) had highest anthocyanin with better stability, functionality, and prebiotic potential. The SCFA concentration (propionic acid and butyric acid) increased significantly in BG fortified-fermented soymilk. Overall, anthocyanin-enriched soymilk exhibited higher prebiotic potential, with MAE as the superior extraction method for anthocyanin functionality and stability.

Biography

Dr Muzaffar Hasan has completed his PhD from Division of Biochemistry, Indian Agricultural Research Institute, New Delhi, India. He is currently working as Scientist at Central Institute of Agricultural Engineering, Bhopal, India. He has published more than 25 papers in reputed journals and has been serving as an editorial board member of reputed journal.