

Nutritional and phytochemical characterization of colored barley germplasms

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ABSTRACT

Barley is 4th important cereal of the world however only limited amount of produced barley is utilized for direct human consumption (up to 4%). Barley is available in different forms including hull-less, hulled and colored type. Colored barley may contain elevated levels of bioactive compounds, anthocyanin, and polyphenols among cereals, which may help in management of NCDs. Very limited literature is available on pigmented barley, Therefore, present study is designed in order to assess the colored barley for its nutritional profiles and antioxidant potential.

Different colored hull-less barley germplasm namely were supplied by NBPGR, New Delhi (India) and were evaluated for different nutritional and antioxidant parameters. β -Glucan, a unique soluble dietary fiber in barley, ranged 4.1% (Karan) to 6.3% (Sheikh-B1). The highest total flavonoids content recorded for barley KP-6 while TPC varied between 2533 to 2933 $\mu\text{g/g}$, among all barley accessions evaluated. Preliminary HPLC screening for the individual polyphenols of barley exhibited that the p-hydroxybenzoic acid, caffeic acid, sinipic acid, ferulic acid and 4-coumaric acid was found the highest in barley germplasm sheikh-B1. DPPH-free radical scavenging activity was found to be in range of 29 to 46%, whereas all pigmented barley samples exhibited higher value of metal chelating activity than normal barley. β -Sitosterol was found to be the most predominant phytosterol and ranged between 28.84 to 58.07 mg/100g.

Overall, colored barley accessions have shown the higher content of bioactive compounds including β -glucan, flavonoids and antioxidant potential which play important role in human health. Therefore, it may be promoted as healthy cereal.

BIOGRAPHY

Dr Paras Sharma is working as scientist in Food Chemistry Division at ICMR-National Institute of Nutrition, Hyderabad. His research work is focused on food composition and analysis including nutrients, biological active compounds, radical scavenging activity analysis of different underutilized food as well as bioaccessibility of nutrients. He has published more than 35 research articles in international journal of repute. He is handling several government funded projects on underutilized pulses (Ricebean), trans fatty acids (TFA) in processed foods and pigmented cereals. He is also member of several scientific societies and reviewer for many reputed journals.

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