

DBT researchers study effects of Anthocyanin-fortified coloured wheat

New Delhi, July 23:It is well established that consumption of either anthocyanins or whole wheat has a positive impact on chronic diseases. Researchers at the Department of Biotechnology's National Agri Food Biotechnology Institute (DBT-NABI), Mohali, have recently studied the effect and the underlying mechanism of anthocyanins-biofortified whole wheat on high-fat diet (HFD)-induced obesity and its comorbidities.

Mice models were fed a high fat diet supplemented with isoenergetic white, purple, or black whole wheat for 12 weeks and then subjected to physiological, biochemical, and nutrigenomics studies (qRT-PCR and RNA-Seq analysis). Both black and purple wheats were found to reduce total cholesterol, triglyceride, and free fatty acid levels in serum, with the restoration of blood glucose and insulin resistance.

However, black wheat was better as it also significantly reduced body weight gain and fat pad, and significantly elevated the expression of enzymes related to fatty acid balancing, β -oxidation, and oxidative stress that support the biochemical and physiological positive outcomes.

Moreover, the transcriptome analysis of adipose and liver tissue reveals activation of multiple pathways and genes related to fatty acid- β oxidation (*crat*, *acca2*, *lonp2* etc.), antioxidative enzymes (*gpx1*, *sod1*, *nxn11* etc.), along with balancing of fatty acid metabolism specifically in black wheat supplemented mice.

Taken together, the results suggest that the incorporation of colored wheat (especially black wheat) in the diet can prevent obesity and related metabolic complications. This work was published in *Molecular Nutrition Food Research* <https://doi.org/10.1002/mnfr.201900999>.

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