

Black Rice: A Promising Functional Food for Diabetes

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ABSTRACT

Introduction: Diabetes affects people globally, making it a rising global health concern. Functional foods with anti-diabetic qualities have drawn a lot of attention, and dietary interventions are necessary for the management of diabetes. Black rice is a nutrient-dense grain, high in minerals, fibre, and anthocyanins, and has become a promising functional meal for managing and preventing diabetes. Black rice is also known as forbidden rice, purple rice, king's rice, heaven rice, and imperial rice and it belongs to the species *Oryza sativa* L. Black rice is used as a functional food due to its great health benefits. The black or purple colour of black rice is due to the presence of a pigment known as anthocyanin that may have antioxidant properties and antidiabetic effects.

Aim: This review aimed to find the anti-diabetic properties of black rice and its use as a functional food for diabetes management.

Results: This review highlights the potential benefits of black rice and focuses on its anti-diabetic properties. It includes how black rice can be used as a dietary intervention to help manage diabetes. Black

rice helps in managing inflammation in diabetics and preventing cell damage in the fight against free radicals. Anthocyanins present in black rice help to reduce blood glucose levels by increasing insulin resistance, protecting pancreatic β cells, boosting insulin release, and slowing down the breakdown of sugars in the small intestine. The studies that the consumption of black rice has been known to improve glycaemic regulation and lower the cardiovascular disease risk factors in a person having type 2 diabetes.

Black rice includes many bioactive substances, including anthocyanins, which have been demonstrated to alter gut microbiota, lower inflammation, increase insulin sensitivity and increase glucose absorption. Consumption of black rice has been shown to increase glucose tolerance in diabetic animal models.

Conclusion: Black rice is considered a promising functional food for diabetes because of its anthocyanin content, safety, sustainability and anti-diabetic properties. Further trials are required to confirm the benefits and demonstrate the ideal consumption guidelines.

Keywords: Anthocyanin, Blood glucose level, Insulin resistance

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