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## Nutraceutical properties of pigmented rice diversity

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Consumption of refined grain products is one of the reasons for present day life style diseases. Because of that global research is going on to understand the health beneficial components and health effects of whole grains. However, research on nutraceutical properties of whole/unpolished rice is meagre. Hence, the objective of the study is the analysis of bioactive nutraceuticals having antioxidant, cardio-protective, and anti-inflammatory properties, and assessment of certain bioactive properties by *in vitro* and *in vivo* methods of whole forms of rice diversity such as white, red, red medicinal and black. Whole rice of colored rice varieties were having higher content of soluble and bound polyphenols compared to white rice. HPLC characterization of polyphenols showed differences among varieties in the content of ferulic, p-coumaric, catechin, etc. Flavonoid content was increasing in the order as - black rice >red medicinal>red>white. Black rice had presence of anthocyanins like cyanidin glucoside and peonidin glucoside as observed by HPLC whereas proanthocyanidin content was high in red medicinal. *In vitro* bioactivity studies showed that whole rice of coloured rice varieties have high DPPH free radical scavenging and ferric reducing activity with highest activity demonstrated by red medicinal rice. Human LDL oxidation inhibition activity was also high in colored rice samples. *In vivo* studies on effect of whole rice in diabetic rat also showed reduction in biochemical markers of hyperglycemia, lipidemia and oxidative stress. It may be concluded that whole rice of pigmented varieties are rich in nutraceuticals and has health beneficial effects, and development of wellness foods needs to be explored.

### Biography

Jayadeep A is a Biochemist with a PhD from Biochemistry Department, University of Kerala, India received in 1993. He worked in the Indo-US projects as Postdoctoral Fellow, as a Project Scientist and a Research Scientist in the University of Kerala. Since 1999, he has been working in CSIR-CFTRI and is currently the Principal Scientist, Associate Professor ACSIR, PhD Co-ordinator and Radiological Safety Officer. He was awarded the UGC Research Fellowship; Johns Hopkins University Overseas PDF; IUBMB Indian Award; International Nutrition Foundation & Kraft Foods Visiting Scientist Fellowship. He published ~40 papers and presented in 26 conferences. He has patented 4 of his inventions and 5 industry processes. He has handled 10 external, 6 industry and 10 Institutional projects. He was also the Past Vice-President, AFST (I). His research interests are in nutraceuticals, bioactivity and bio-accessibility of grains; bio-processing by enzymatic biotransformation; health foods; and biochemical aspects of nutraceuticals in health.

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