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A Brief Description on Rice Bran Welfare

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Introduction

Rice bran is highly nutritious as it has wide variety of antioxidants like oryzanol, tocopherol, tocotrienol, phytosterol and also contains other important nutrients. Due to all these properties that render its suitability for the production of value added products in Nutraceutical and pharmaceutical industry. Other health benefits of rice bran in the health of humans are Coronary Heart Disease, It is the coronary artery disease in which oxygen rich blood is not supplied to the heart muscle due to the blockage of artery by a gradual formation of fatty steaks within their walls called plaque [1]. The consumption of dietary fiber that is present in rice bran have shown to reduce the risk of coronary Heart Disease mortality by lowering blood pressure, lowering blood cholesterol levels and by improving insulin sensitivity. The regulation of plasma cholesterol levels is done by liver; hence liver cholesterol levels also provide a measure of the influence of diet on cholesterol metabolism. In hamsters, diet containing 10% total dietary fibre from rice bran or a 5:5 total dietary fibre combination of rice bran and a 13-glucan-enriched barley fraction in diets containing 0.25% cholesterol significantly lowered the cholesterol [2]. The fiber in rice bran has a laxative effect with increase fecal output and stool frequencies. The postprandial blood glucose in normal and diabetic patients can be reduced by soluble fibers. It acts like a sponge and absorbs water in the intestine, mixes the food into gel and thereby slows down the rate of digestion and absorption. The fiber comprised of relatively low proportions of soluble fiber and the rest is insoluble fiber in rice bran. The Nutraceutical developed from the soluble and fiber fractions of rice bran control both type I and type II Diabetes Mellitus. The blood glucose, total cholesterol and triglycerides can be decreased by rice bran. Phytosterol has shown to inhibit tumors induced by chemicals in animals.

Discussion

The production of coprostanol and other neutral sterols and bile acids by colonic micro-flora from dietary cholesterol, have been established as factors in colon carcinogenesis [3]. The results showed that the intake of dietary fiber was inversely related to the occurrence of colorectal cancer. The highest protective effect was shown at the left side of the colon whereas the least protective effect was at rectum. The value of the adjusted relative risk for the highest versus lowest quintile of dietary fiber was 0.58. The bran fraction of rice is composed of phytochemicals and nutrients with known cancer-fighting and immune-enhancing properties. The process of fermenting rice bran with bacterial or fungal agents can beneficially alter the bioactivity. For example, fermenting rice bran with Saccharomyces boulardi induced an increase in the amount of frolic acid released and reduced lymphoma cell viability compared with non-fermented rice bran [4]. The oryzanol, a protective agent against UV light induced lipid peroxidation and hence can be used as a potent sunscreen agent. Oryzanol can impede the progress of melanin pigmentation by intercepting the ultraviolet rays at the skin's surface and hindering its transmission. In gamma oryzanol, the ferulic acid and its esters stimulate hair growth and prevent skin aging [5].

Conclusion

Approximately 500 ppm of tocotrienol is resent in rice bran.

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