Effect of fungal solid state fermentation (SSF) on Phytate (myo-inositol hexakiphosphate).

Content of sorghum flour


Sorghum (Sorghum bicolor (L) Moench is the fifth most important cereal in the world. In developing countries, most families feed their infants homemade cereal-based gruels made from sorghum. Unfortunately sorghum based gruels are nutritionally poor. Sorghum also contains the anti-nutritional compound phytate (myo-inositol hexaphosphate). Phytate is one of the main inhibitors of iron, calcium, and zinc absorption in humans. This minerals bind to the phytate and become unavailable to the body. During fermentation, phytates produced break down the phytate, releasing the bound minerals and making them available to the body. Solid-state fermentation (SSF) process has been employed to improve the nutritional value of a variety of vegetable food raw materials. The SSF process for food preparation is usually performed with Rhizopus strains. The objective is to study the effects of food molds on the nutritional qualities of sorghum flour. Samples were analyzed for phytates content using the procedure of Adebowale et al. (2005). Results showed that fermentation with R. Oryzae resulted in almost 50 % reduction on phytic acid content after 72 hours. Total Ca barely increased but bioavailable Ca thoroughly improved. Total Fe and bioavailable Fe slightly improved as well as Total and Bioavailable Zn. In conclusion, SSF can improve the nutritive value of sorghum flours.