162162

ABSTRACT

Title: Stabilization of rice for human consumption

Summary of the Invention

Fatty acids in biological systems can undergo oxidation, leading to deterioration. In foods, these reactions can lead to rancidity, loss of nutritional value from the destruction of vitamins (A,D and E) and essential fatty acids, and the possible formation of toxic compounds.

It has now been discovered that rice can be stabilized with different methods of heat treatment immediately after the husks and/or the bran are removed from rough rice which is necessary in order to inhibit the enzymatic hydrolyzation process (by lipase enzyme) on the polyunsaturated fatty acid in rice, thus avoiding free fatty acid build-up and oxidation to the level of 5% or higher during storage. If the free fatty acid build-up in rice rises above the level of 5%, the rice is not suitable for human consumption anymore. The rapid free fatty acid build-up is due to the fact that as soon as husks are removed from the rough rice, the enzymatic hydrolysis process (attack of polyunsaturated fatty acids by lipase enzyme) starts to take place resulting in the molecular structure of the fatty acids in rice being altered and therefore deteriorate rapidly during storage. This is followed by oxidation and the resulting rancid odor of rice, the characteristics which makes the rice not suitable for human consumption.

The ultimate aim of the invention is to develop methods to preserve the nutritional value of rice immediately after the husks are removed from the rough rice and/or after polishing so that rice can be stored for consumption for longer period of time in normal plastic retail bags or vacuum-packed, or nitrogen-filled and/or U.V. protected packages. This would improve and enhance storage and cooking as staple food, or as a food to promote better health (i.e. as health food and functional food for anti-ageing, energy food, weight control, improvement of skin condition, and for the prevention and treatment of a variety of degenerative health problems). The invention is considered innovative and unique in the field of food stabilization with aims to preserve the nutritional value of rice for longer storage for human consumption and for the health benefits of mankind through the control of the free fatty acid level and thereby avoiding oxidation during storage.

G00001