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Dry Roasting of Beans

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Dr. Irving Liener, University of Minnesota, Minneapolis, MN, and Grant Kuhn of the Grant L. Kuhn and Co., Saginaw, MI, reviewed a new process for dry-bed roasting of navy beans. The work is reported in detail in an article by Yadav and Liener, Legume Research 1 (1):17 (1977). The procedure appears applicable to many seeds including soybeans that need heat treatment prior to consumption by animals or humans. The seeds are roasted for a short time at ca. 200 C before being processed to flour or retained as seeds. By means of a screw conveyor, beans are dropped into an inclined rotating drum. It contains sand, salt or ceramic pellets as a heat transfer medium held at 196-204 C. The beans are retained for ca. 20-25 seconds. Beans are dropped into a separator which permits transfer of the salt, sand, or pellets back to the rotating drum heater. Roasted beans may be ground to flour, converted to other products or marketed as "roasted" beans. Tests showed the beans to have digestibility and PER superior to autoclaved beans. Trypsin inhibitor was reduced ca. 75% to 4 x 10^{-3} units per g and hemagglutinin units to 0.2. With added methionine, the PER was 3.1 ± 0.08 and with 50-50 corn-beans, the PER was equal or better than casein. Tests are currently being completed on soybeans.

Physiological Effects of High Soybean Diet in Man

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Two groups of 46 human volunteers were fed a control or a soy diet for 4 weeks and the diet switched for another 4 weeks. The soy diet was based on a soy concentrate of ca. 62% protein. The nutritional, medical and toxicological experts of the group involved in this study concluded unanimously that changes in physiological parameters were not abnormal. Where significant differences were noted, they fell within normal clinical limits. No undesirable effect was noted with no indication of any undesirable long term effect. Properly heat-treated soy protein products should not give any health problems with humans. See Cereal Foods World 23(5):234 (1978).

Toxicity of Cereal Protein - Derived Peptides for in Vitro Developing Intestine from Rat Fetus

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ABSTRACT

This paper describes work that shows that the PTC digest of gliadins extracted from hexaploid wheat flour have the same toxic activity of the PTC digest of gliadins extracted from hexaploid wheat gluten. Moreover, not all wheat species apparently contain the toxic components, thus suggesting that durum wheat foods may present, as compared to soft wheat foods, a lower risk for human health under particular circumstances. Similar considerations seem to apply to other cereal genera that seem to differ with respect to the presence and/or content of toxic peptides. Further experiments to test such a working hypothesis are now being made.

INTRODUCTION

Many factors, such as protein content, essential amino