

# THE HEALTH EFFECTS OF BETA GLUCANS AS FOOD INGREDIENTS

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## ABSTRACT

Beta glucans are relatively affordable byproducts with proven health benefits. They are mainly isolated from the cell walls of yeast, fungi and cereals, and their content is highly dependent on environmental conditions. Among the cereals, the beta glucan content per 100 g dry weight of barley and oats was reported to be 20 and 8 g, respectively. The use of beta glucans is permitted as potent immunological modulators in many countries, including the United States, Canada, Finland, Sweden, China, Japan, and Korea. Beta glucans exert their effects as free radical scavengers and by supporting the antioxidant system. However, they are powerful immunostimulators with known positive effects on the immune system. The dose range of beta glucan has been specified as 40-3000 mg per day by the American Food and Drug Administration in the General Safe for Use category, and it has been accepted as 2-6 mg/kg of body weight. As a result of some clinical and experimental studies investigating the effects of beta glucan on health, the following results were obtained: The effects of beta glucans on abscess formation and mortality in experimental intra-abdominal sepsis were investigated and their protective effects were reported. In another study, it was determined that beta glucans significantly reduced the expression of pro-inflammatory cytokines and systemic inflammation in rats with septic peritonitis. There are experimental studies showing that beta glucans are effective in increasing resistance against bacterial and parasitic infections. In a clinical study on Corona virus, it was determined that purified beta glucans (lentinan) reduced the bacterial load in arterial blood and bronchoalveolar lavage, and alleviated inflammation by reducing the number of leukocytes in the lung. It was determined that the effects of renal ischemia and ulcerative colitis were significantly improved in rats given beta glucan. As a result, considering that beta glucans do not have a known negative effect as a food ingredient, it is recommended to be used for protective purposes.

*Keywords: Anti-inflammatory, antioxidant, beta glucan, immunomodulation, oxidative stress*