Immunomodulation Property of Edible Mushroom: A Review

Ganguly Subha*
AICRP On Post Harvest Technology (ICAR), Department of Fish Processing Technology, Faculty of Fishery Sciences, West Bengal University of Animal and Fishery Sciences, 5, Budherhat Road, P.O. Panchasayar, Chakgaria, Kolkata - 700 094, WB, India
*E-mail: ganguly38@gmail.com
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Abstract
Immunomodulator stimulates leucocytes, particularly cells of the macrophage system and modulates and potentiates the immune system of the body. It has been recommended earlier that the constant addition of immunomodulators to feed is beneficial for prevention of diseases. One of such immunostimulant compound is β-Glucan, polymers of glucose which consists of a linear backbone of β-1, 3 linked D-glucopyranosyl residues having varying degree of branching from the C₆ position.

Keywords: β-glucan, Immunomodulator

Introduction
β- Glucans are major structural components of yeast, mushrooms and fungal mycelia. Supplementation of β- glucan in diets increase the macrophage phagocytic activity, PHA-P- mediated lymphoproliferative response and also humoral response. β- Glucan provides significant protection against pathogen as a feed additive by upregulating phagocytosis, bacterial killing, and oxidative burst in chicken. In the mammalian system, action of β- glucan is mediated through toll-like receptors (TLR) and dectin-1. In the present work evaluation was carried out for short term dietary influence of a purified β- glucan, prepared from an edible mushroom, on the innate immunity and disease resistance of broiler birds.

Reported research findings on related area
Previous studies showed that infections caused by Staphylococcus aureus and Eimeria vermiformis in mice can be prevented by β-glucan administration. Experimental respiratory challenge with Escherichia coli in broiler chicks can also be prevented by β-1, 3 / 1,6 glucan derived from Saccharomyces cerevisiae. Rice et al. showed that dietary administration of glucan to rat enhanced survivability against Staphylococcus aureus infections. Orally administered yeast β-glucan to mice could reduce the mortality in anthrax infections.

Conclusion
The priming of the immune system with β-glucan apparently enabled to enhance the efficacy of immune effector cells viz. neutrophil, macrophage and lymphocyte and efficiently increases the protection level against diseases and infections.

References