



Review Article

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**Yeast cell wall as an Immunostimulant in Poultry When Experimentally Fed Orally Mixed in Feed: A Research Driven 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](mailto:ganguly38@gmail.com)Available Online: **19 December 2013****Abstract**

Yeast  $\beta$ -glucan has been reported to enhance the immune responses in fish, cattle and humans. However, information regarding the effect of dietary administration of yeast cell wall preparation on immune responses in birds is limited. In the present study we evaluate the augmentation of the non-specific immune responses, viz. production of oxygen and nitrogen species, lymphoproliferation and IL-2 (cytokine) production in broiler birds following YCW treatment.

**Key words:** Yeast cell wall, Immunomodulator**Introduction**

Immunomodulator is a substance that stimulates leucocytes-particularly cells of the monocyte/ macrophage system and thereby modulates, and most often potentiates, the immune system of the body<sup>1</sup>. The term immunomodulator was often used interchangeable with immunostimulants, adjuvants and biological response modifiers. Glucan and mannan are the main components of yeast cell wall (YCW) that are gained from pure culture of yeast, *Saccharomyces cerevisiae*.  $\beta$ -D- glucan is major component of yeast cell wall and has been shown to stimulate non-specific immune response. Glucans with  $\beta$  1-3,  $\beta$  1-4 and  $\beta$  1-6 glucosidic linkages are major structural components of YCW, mice, rats, rabbits, sheep and pigs.<sup>2</sup>

**Reported research findings on related area**

The previous workers showed that the use of yeast glucan was enhanced oxidative respiratory burst in human and chicken<sup>3</sup>, monocyte activity and nitrite production also enhanced in sheep and chicken<sup>4</sup>.

Guo *et al.*<sup>5</sup> and Waller *et al.*<sup>4</sup> and Paul *et al.*<sup>2</sup> observed glucan enhanced the lymphocyte proliferation in cattle and chicks respectively. Oral administration of yeast glucan enhanced the cytokine production in mice<sup>6</sup>. The enhancement of oxygen radicals, nitrite, cytokine (IL-2) production and lymphoproliferation of broiler birds might be related to the oral administration of yeast cell wall preparation.

**Conclusion**

Oral administration of yeast cell wall preparation enhances immune responses at cellular level. More studies are required to explore the possibility of this immunostimulant for its disease resistance characteristics.

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