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EDITORIAL

Research and Development on Immunomodulatory Aspect of Fungal Feed Additives for Livestock and Poultry: An Editorial

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ABSTRACT
This editorial is constructed with the aim of highlighting the pharmaceutical and physiological effect of purified yeast cell wall preparation as an immunomodulator on the innate immune responses in broiler. This article portrays the potentiality of yeast cell wall preparation as an immunostimulant in poultry.
Key words: *Chicken, Immunomodulator, Yeast cell wall*

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INTRODUCTION

Immunomodulator stimulates leucocytes, particularly cells of the macrophage system and modulates and potentiates the immune system of the body [1]. It has been recommended earlier that the constant addition of immunomodulators to feed is beneficial for prevention of diseases [2]. 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 [3]. 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 [4]. β- Glucan provides significant protection against pathogen as a feed additive by upregulating phagocytosis, bacterial killing, and oxidative burst in chicken [5]. In the mammalian system, action of β- glucan is mediated through toll-like receptors (TLR) and dectin-15. 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.

IMPORTANCE AS DIETARY SUPPLEMENT

Yeast β-glucan has been reported to enhance the immune responses in fish [6], cattle [7] and humans [8]. 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 [9].

IMMUNOMODULATIORY IMPLICATIONS

The previous workers showed that the use of yeast glucan was enhanced oxidative respiratory burst in human and chicken. Monocyte activity and nitrite production also enhanced in sheep and chicken [10].
Guo *et al.* [4] and Waller *et al.* [11] observed glucan enhanced the lymphocyte proliferation in cattle. Oral administration of yeast glucan enhanced the cytokine production in mice [12]. 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 (NutrifermTM) from *Saccharomyces cevisiae*.

CONCLUSION

It can be concluded that dietary β-glucan may provide immunostimulatory properties necessary to reduce the incidence of any infection in poultry.

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