

Ganguly S. Pharmaceutical and immunomodulation effect of yeast and mycotic extracts as feed additives for livestock and poultry. *Bull. Pharm. Res.* 2013;3(3):125-7.

References (26):

1. Bohn JA, BeMiller JN. (1→3)- β -D-Glucans as biological response modifiers: A review of structure-functional activity relationships. *Front. Carbohydr. Res.* 1995;28(1):3-14.
<http://www.sciencedirect.com/science/article/pii/0144861795000763>
2. Brown GD, Gordon S. Fungal beta-glucans and mammalian immunity. *Immunity* 2003; 19(3):311-5.
<http://www.ncbi.nlm.nih.gov/pubmed/14499107>
3. Engstad CS, Engstad RE, Olsen JO, Osterud B. The effect of soluble beta-1,3-glucan and lipopolysaccharide on cytokine production and coagulation activation in whole blood. *Int. Immunopharmacol.* 2002;2(11):1585-97.
<http://www.ncbi.nlm.nih.gov/pubmed/12433059>
4. Ganguly S, Paul I, Mukhopadhyay SK Immunostimulants- Their significance in finfish culture. *Fish. Chimes* 2009;29(7):49-50.
<http://www.fishingchimes.com/>
5. Ganguly S., Paul I, Mukhopadhyay SK. Immunomodulatory effects of fungal beta-glucans in fish farming. *Fish. Chimes* 2010;30(7):64.
<http://www.fishingchimes.com/>
6. Ganguly S, Dora KC, Sarkar S, Chowdhury S. Supplementation of prebiotics in fish feed - A Review. *Rev. Fish Biol. Fisheries* 2013;23(2):195-9.
<http://link.springer.com/article/10.1007%2Fs11160-012-9291-5#>
7. Ganguly S. Fundamentals of Fish Immunostimulants. Research India Publications, Delhi; 2013.
8. Guo Y, Ali RA, Qureshi MA. The influence of beta-glucan on immune responses in broiler chicks. *Immunopharmacol. Immunotoxicol.* 2003;25(3):461-72.
<http://www.ncbi.nlm.nih.gov/pubmed/19180808>
9. Huff GR, Huff WE, Rath NC, Tellez G. Limited treatment with β -1,3/1,6-glucan improves production values of broiler chickens challenged with *Escherichia coli*. *Poult. Sci.* 2006; 85(4):613-8.
<http://www.ncbi.nlm.nih.gov/pubmed/16615344>

10. Lowry VK, Farnell MB, Ferro PJ, Swaggerty CL, Bahl A, Kogut MH. Purified beta-glucan as an abiotic feed additive up-regulates the innate immune response in immature chickens against *Salmonella enterica* serovar *Enteritidis*. *Int. J. Food Microbiol.* 2005;98(3):309-18.
<http://www.ncbi.nlm.nih.gov/pubmed/15698692>
11. Onarheim AM. Now a yeast extract to fortify fish. *Fish Farmer* 1992;15:45.
12. Paul I, Isore DP, Joardar SN, Samanta I, Biswas U, Maiti TK, Ganguly S, Mukhopadhyay SK. Orally administered β -glucan of edible mushroom (*Pleurotus florida*) origin upregulates innate immune response in broiler. *Indian J. Anim. Sci.* 2012;82(7):745-8.
http://m.riss.kr/search/detail/DetailView.do?p_mat_type=e21c2016a7c3498b&control_no=32cdfc136e87eb9dffe0bdc3ef48d419
13. Paul I, Isore DP, Joardar SN, Roy B, Aich R, Ganguly S. Effect of dietary yeast cell wall preparation on innate immune response in broiler chickens. *Indian J. Anim. Sci.* 2013; 83(3):307-9.
<http://www.scimagojr.com/journalsearch.php?q=18247&tip=sid>
14. Persson Waller K, Gronlund U, Johannisson A. Intramammary infusion of beta1,3-glucan for prevention and treatment of Staphylococcus aureus mastitis. *J. Vet. Med. B. Infect. Dis. Vet. Public Health* 2003;50(3):121-7.
<http://www.ncbi.nlm.nih.gov/pubmed/12667189>
15. Reynolds JA, Kastello MD, Harrington DG, Crabbs CL, Peters CJ, Jemski JV, Scott GH, Di Luzio NR. Glucan-induced enhancement of host resistance to selected infectious diseases. *Infect. Immun.* 1980;30(1):51-7.
<http://www.ncbi.nlm.nih.gov/pubmed/7439978>
16. Rice PJ, Adams EL, Ozment-Skelton T, Gonzalez AJ, Goldman MP, Lockhart BE, Barker LA, Breuel KF, Deponti WK, Kalbfleisch JH, Ensley HE, Brown GD, Gordon S, Williams DL. Oral delivery and gastrointestinal absorption of soluble glucans stimulate increased resistance to infectious challenge. *J. Pharmacol. Exp. Ther.* 2005;314(3):1079-86.
<http://www.ncbi.nlm.nih.gov/pubmed/15976018>
17. Wadstrom T. Pathogenesis of Wound and Biomaterial - Associated Infections. Springer-Verlag, USA; 1990.
<http://books.google.co.in/books?id=511sAAAAMAAJ&q=Immunomodulators-medicine+for+the++In:+Pathogenesis+of+wound+and+biomaterial+associated+infections&dq=Immunomodulators-medicine+for+the++In:+Pathogenesis+of+wound+and+biomaterial+associated+infections&hl=en&sa=X&ei=sjtBU-uvG8GHrQfnwYHIAg&ved=0CCwQ6AEwAA>
18. Selvaraj V, Sampath K, Sekar V. Administration of yeast glucan enhances survival and some non-specific and specific immune parameters in carp (*Cyprinus carpio*) infected with *Aeromonas hydrophila*. *Fish Shellfish Immunol.* 2005;19(4):293-306.
<http://www.ncbi.nlm.nih.gov/pubmed/15863011>

19. Tsukada C, Yokoyama H, Miyaji C, Ishimoto Y, Kawamura H, Abo T. Immunopotential of intraepithelial lymphocytes in the intestine by oral administrations of beta-glucan. *Cell. Immunol.* 2003;221(1):1-5.
<http://www.ncbi.nlm.nih.gov/pubmed/12742376>
20. Vetvicka V, Terayama K, Mandeville R, Brousseau P, Kournikakis B, Ostroff G. Orally-administered yeast beta-1,3-glucan prophylactically protects against anthrax infection and cancer in mice. *J. Am. Nutra. Assoc.* 2002;5(2):16-20.
<http://www.betaexpress.com/BetaEX/anthraxresearch.html>
21. Wakshull E, Brunke-Reese D, Linderemuth J, Fiset L, Nathans RS, Crowley JJ, Tufts JC, Zimmerman J, Mackin W, Adams DS. PGG-glucan, a soluble beta-(1,3)-glucan, enhances the oxidative burst response, microbicidal activity, and activates an NF-kappa B-like factor in human PMN: evidence for a glycosphingolipid beta-(1,3)-glucan receptor. *Immunopharmacology* 1999;41(2):89-107.
<http://www.ncbi.nlm.nih.gov/pubmed/10102791>
22. Waller KP, Colditz IG. Effect of intramammary infusion of beta-1,3-glucan or interleukin-2 on leukocyte subpopulations in mammary glands of sheep. *Am. J. Vet. Res.* 1999;60(6):703-7.
<http://www.ncbi.nlm.nih.gov/pubmed/10376896>
23. Williams DL, di Luzio NR. Glucan induced modification of experimental *Staphylococcus aureus* infection in normal, leukemic and immunosuppressed mice. *Adv. Exp. Med. Biol.* 1979;121(A):291-306.
<http://www.ncbi.nlm.nih.gov/pubmed/547728>
24. Xiao Z, Trincado CA, Murtaugh MP. Beta-glucan enhancement of T cell IFN-gamma response in swine. *Vet. Immunol. Immunopathol.* 2004;102(3):315-20.
<http://www.ncbi.nlm.nih.gov/pubmed/15507314>
25. Yun CH, Estrada A, Van Kessel A, Park BC, Laarveld B. Beta-glucan, extracted from oat, enhances disease resistance against bacterial and parasitic infections. *FEMS Immunol. Med. Microbiol.* 2003;35(1):67-75.
<http://www.ncbi.nlm.nih.gov/pubmed/12589959>
26. <https://mycotopia.net/topic/54575-do-pleurotus-species/>