

30th International Conference on

NUTRACEUTICALS AND NATURAL MEDICINE

January 28-29, 2019 Osaka, Japan

Mushroom immunomodulators: Medicinal effects**Vaibhav D Aher**

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Immunomodulators are key components in the modern health and wellness industries, reflecting the fact that the immune system is the first barrier for disease prevention. Recently many bioactive compounds have been isolated from different types of mushrooms. Among these immunomodulators have gained much interest based on the increasing growth of the immunotherapy sector. In clinical practice, immunomodulators are usually classified into immunosuppressants, immunostimulants and immunoadjuvants. They are even used as prodrugs or prophylactic medicine for healthy people. More than 50 known mushrooms harbor immune regulating organic compounds of highly diversified molecular weight and structure. Few mushrooms with immunomodulator activities exhibit stimulating activities for both innate and adaptive immune systems. They proliferate and activate innate immune system components such as Natural Killer (NK) cells, neutrophils and macrophages and stimulate cytokines expression and secretion, cancer and infectious diseases. These cytokines in turn activate adaptive immunity through the promotion of B cells for antibodies production and stimulation of T cell differentiation to T helper cells, which mediate cell and humoral immunities, respectively. Based on their high molecular weight, mushroom polysaccharides are not able to penetrate the immune cells to activate immune cells directly. Thus stimulation mechanism of polysaccharides involves different cell receptors such as dectin-1, Complement Receptor 3 (CR3), Lactosylceramide (LacCer) and Toll-Like Receptor (TLR)2. In such cases, the effectiveness of polysaccharides is governed by their binding affinity to immune cell receptors. In general, mushroom immunomodulators are classified into four main groups: Immunomodulatory lectins, immunomodulatory terpenes and terpenoids, immunomodulatory polysaccharides and Fungal Immunomodulatory Proteins (FIPs).

Biography

Vaibhav D Aher has received his Master's degree in Pharmaceutical Biotechnology and completed PhD from National Institute of Medical Sciences. He has Postdoctoral studies from Defence Research Laboratory, Defence Research and Development Organization (DRDO), India and University of Arkansas for Medical Sciences, USA. He has published more than 15 papers in reputed journals and has been serving as a Reviewer of repute. His research experience is in the field of immunomodulatory and genotoxicity studies.

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