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Medicinal Properties of Substances Occurring in Higher Basidiomycetes Mushrooms: Current Perspectives (Review)

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ABSTRACT
This review highlights some of the recently isolated and identified substances of higher Basidiomycetes mushroom origin that express promising antitumor, immune modulating, cardiovascular and antihyper-cholesterolemia, antiviral, antibacterial, antiparasitic, hepatoprotective, and antidiabetic effects. Medicinal mushrooms have a long history of use in folk medicine. Mushrooms useful against cancers of the stomach, esophagus, lungs, etc., are known in China, Russia, Japan, and Korea, as well as the United States and Canada. There are approximately two hundred species of mushrooms that have been found to markedly inhibit the growth of different kinds of tumors. However, most of the mushroom origin antitumor substances have not been clearly defined. Several antitumor polysaccharides, such as hetero-β-glucans and their protein complexes (e.g., xyloglucans, and acidic β-glucan containing uronic acid), as well as dietary fibers, lectins, and terpenoids, have been isolated from medicinal mushrooms. In Japan, Russia, China, and the United States, several different polysaccharide antitumor agents have been developed from the fruiting body, mycelia, and culture medium of various medicinal mushrooms (Lentinus edodes, Ganoderma lucidum, Schizophyllum commune, Trametes versicolor, Inonotus obliquus and Flammulina velutipes). Both cellular components and secondary metabolites of a large number of mushrooms have been shown to effect the immune system of the host and therefore could be used to treat a variety of disease states. The information presented in this review is helpful in exploring and understanding the rich traditions of medicinal mushrooms in Eastern and Western cultures and medicine.

KEY WORDS: Dietary fiber, higher Basidiomycetes, immune modulating effect, immunopotentiators, lectins, medicinal mushrooms, polysaccharides, terpenoids, antitumor substances
Basidiomycetes are rich sources of natural antibiotics. The secondary metabolites produced by them possess antimicrobial, antitumor, and antioxidant properties. The present review discusses the potential role of Basidiomycetes as anti-phytufungal, anti-phytobacterial, anti-phytoviral, mosquito larvicidal, and nematicidal agents. Wasser, S.P.; Weis, A.L. Medicinal properties of substances occurring in higher basidiomycetes mushrooms: Current perspectives (review). Int. J. Med.