Mycotherapy of cancer: an update on cytotoxic and antitumor activities of mushrooms, bioactive principles and molecular mechanisms of their action.

Popović V, Živković J, Davidović S, Stevanović M, Stojković D.

Abstract

Mycotherapy is defined as the study of the use of extracts and compounds obtained from mushrooms as medicines or health-promoting agents. The present review updates the recent findings on anticancer/antitumor agents derived from mushroom extracts and their metabolites. The increasing number of studies in the past few years revealed mushroom extracts as potent antitumor agents. Also, numerous studies were conducted on bioactive compounds isolated from mushrooms reporting the heteropolysaccharides, β-glucans, α-glucans, proteins, complexes of polysaccharides with proteins, fatty acids, nucleoside antagonists, terpenoids, sesquiterpenes, lanostanoids, sterols and phenolic acids as promising antitumor agents. Also, molecular mechanisms of cytotoxicity against different cancer cell lines are discussed in this review. Findings with Antrodia camphorata and Ganoderma lucidium extracts and isolated compounds are presented, as being the most deeply studied previously.

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