

Antioxidant and antiproliferative activities of the extracts of *Hypsizygus tessellatus* (brown and white var.) and *Flammulina velutipes* caps

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Abstract:

Cancer is a burning issue in the world today as high mortality rates are associated with it. The World Health Organization (WHO) has advocated exploration of natural products as the alternative measure for cancer management as the synthetic drugs has very strong side effect. Thus, this study investigated the antiproliferative effects of water and methanol extracts of the caps of three mushrooms (two variants of *Hypsizygus tessellatus* and *Flammulina velutipes*) against two breast cancer cell lines. In addition to the antiproliferation study, phytochemical identification and anti-oxidant investigation was also conducted. The phytochemical compositions of the extracts were identified using mass spectroscopy (UPLC-QTOF/MS). From the obtained results, the water extracts of *F. velutipes* (Enoki) and white *H. tessellatus* (Bunapi shimeji) caps showed higher radical scavenging activities against DPPH free radicals and H₂O₂ compared to the methanol fractions. accordingly, the same extracts showed a good ferric reducing antioxidant power against ferric ions. Finally, the extracts showed considerable levels of antiproliferative activities against the breast cancer cells (MCF-7 and MDA-MB-231). Therefore, the findings suggest that the presence of different phytochemicals (polyphenols, alkaloids) become reactive synergistically to eliminate free radicals from the body and help to prevent the development of free radicals-related diseases like cancer.

Keywords : Antiproliferative; Antioxidant; Phytochemicals; Enoki; Bunapi shimeji; Buna shimeji

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