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Cytotoxicity, antioxidant activity, total phenol and flavonoid contents of the macrofungus, *Anthracophyllum lateritium* from Dambulla

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Macrofungi accumulate a spectrum of secondary metabolites such as phenols and flavonoids. These compounds are known to exhibit antioxidant and cytotoxic properties leading to development of potential drug leads in the treatment of cancer. The objective of this study was to evaluate cytotoxicity, antioxidant activity, total phenol and flavonoid contents of the macrofungus, *Anthracophyllum lateritium* whichbelongs to the Marasmiaceae family. Specimen was collected from the dry zone forest reserves in Dambulla. Solvent extraction of air-dried powder (10 g) of *A. lateritium* was carried out by sonication with 150 ml of methanol, methanol: dichloromethane (1:1) mixture and dichloromethane respectively. Each extract was filtered and extracts were pooled to obtain the total filtrate. Total filtrate was flash concentrated by rotary evaporation to obtain the crude extract. The crude extract was redissolved in methanol and cytotoxicity was determined by MTT [3-(4, 5-Dimethylthiazol-2-Yl)-2,5-Diphenyltetrazolium Bromide] assay after 24 hour treatment of methanol extract to *Hep-2* cells (human laryngeal carcinoma cells). Antioxidant activity was assayed by DPPH (1, 1-Diphenyl-2-Picrylhydrazyl) scavenging method. Total phenol and flavonoid contents were also evaluated by the Folin-Ciocalteau and aluminum chloride colorimetric methods respectively. All experiments were performed in triplicate.

The effective concentrations of sample required to inhibit cell viability and scavenge DPPH free radicals, by 50 % (EC_{50}) were obtained by linear regression analysis of the dose response curves. *A. lateritium* showed a potent cytotoxic activity with an EC_{50} value of 16 ± 0.04 µg/ ml and strong antioxidant activity with an EC_{50} of 8.0 ± 0.02 µg/ml comparable to ascorbic acid standard (EC_{50} of 5 µg/ml). Further, it was found to possess high levels of total phenol and flavonoid suggesting that phenol and flavonoid compounds may contribute largely to its promising antioxidant activity and cytotoxicity.

Keywords: Macrofungi, $EC_{50,}$ cytotoxicity, antioxidant activity, phenol content, flavonoid content

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