SUPPLEMENTARY MATERIAL

Lignicolous fungi hydrodistilled extracts may represent a promising source of natural phenolics

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Abstract

In vitro evaluation of total phenolic contents and antiradical activities of the lignicolous fungi *Fomes fomentarius* and *Schizophyllum commune* hydrodistilled extracts was the subject of this study. This preliminary screening included four free radical species evaluated by UV-VIS (DPPH[•], ABTS[•] and [•]NO) and EPR (Asc[•]), respectively. According to the experimental data obtained, both *F. fomentarius* and *Sch. commune* hydrodistilled extracts may be considered as promising sources of phenolic natural products (157 and 138 mg GAE/g d.e., respectively) and other bioactives showing good anti-DPPH (1.31 µg/mL) and anti-Asc (70.40 %) radical activities respectively at *in vitro* conditions.

Keywords: *Fomes fomentarius*, *Schizophyllum commune*, hydrodistillation, total phenolics, free radicals, DPPH[•], Asc[•]

Experimental

General

All chemicals used were purchased from Sigma-Aldrich (Munich, Germany).

Biological material

The samples of the fungi *Fomes fomentarius* (L.:Fr.) and *Schizophyllum commune* Fr.:Fr. were collected in Ribnica, Slovenia (voucher specimen No. 12-00681) and Novi Sad, Serbia (voucher specimen No. 12-00679) in May 2014, respectively. Both voucher specimens have been deposited in the Mycological Collection of the Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad. Both fungi were immediately cleaned, lyophilised and kept in a freezer (1 week, at + 4 °C) until further use.

Extraction

The biological material (*F. fomentarius* and *Sch. commune* 100 and 200 g, respectively) was hydrodistilled for 4 h using the Clevenger apparatus. The remaining fungal residues were afterwards extracted with 96 % EtOH (1:2), while the corresponding extracts were evaporated to dryness and dissolved in DMSO (20 % w/w).

Electron paramagnetic resonance

EPR spectra were recorded using Bruker Elexsys II EPR spectrometer using X-band microwave bridge and SHQE-1102 ultra-sensitive resonator. Ascorbyl radical was generated using classic Fenton reaction in the presence of ascorbate. Conditions of the spectral recording were as followed: scan range 40 G; microwave power 10 mW; modulation amplitude 2 G; microwave frequency 100 kHz.

UV-VIS spectrophotometry

Total phenolic content

Total phenolic content was determined by the Folin-Ciocalteu method (triplicate; mean value $\pm$ SD), using gallic acid as standard (Singleton et al. 1999).

Anti-DPPH[•] activity

Anti-DPPH[•] activity was determined on the basis of well known transformation of this free radical to its reduced form (DPPH-H) in the presence of antioxidants (from purple to yellow colour), measured at 515 nm (triplicate; mean value $\pm$ SD) (Espin et al. 2000).

Anti-ABTS[•] activity

Anti-ABTS[•] activity was determined at 734 nm, according to the widely used procedure, using trolox as standard (triplicate; mean value $\pm$ SD) (Arnao et al. 2001).

Anti-[•]NO activity

Determination of anti-[•]NO activity is based on the spectrophotometric measurements (546 nm) of capability of the examined sample to neutralise nitric ions; sodium-nitroprusside was used as a source of NO radicals (triplicate; mean value $\pm$ SD) (Green et al. 1982).

References

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