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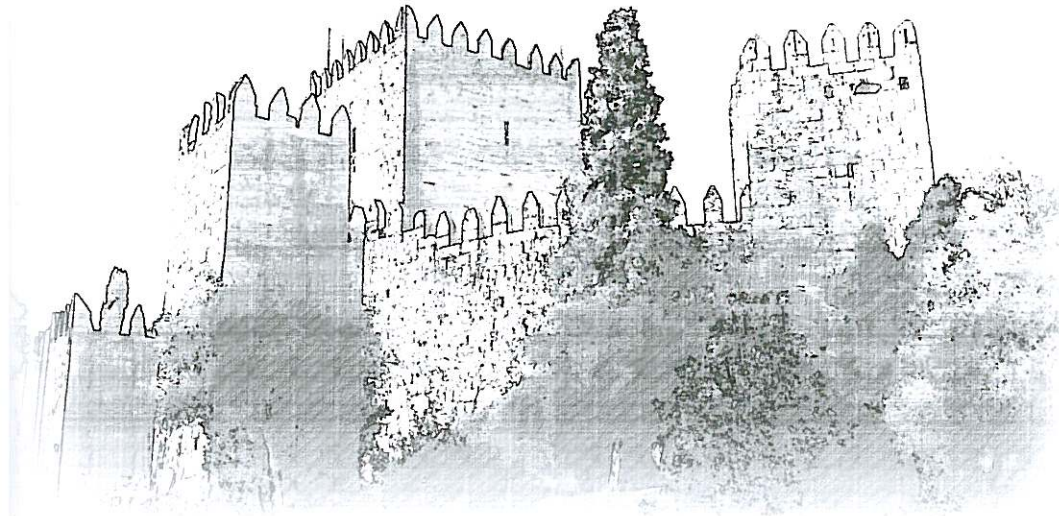
Book of Abstracts



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this study was to assess the anticancer activity of extracts of marine-derived and soil fungi using a panel of seven cancer cell lines. The extracts were obtained from marine-derived fungi *Neosartorya tsunodae* KUFC 9213 (E1) and *N. laciniosa* KUFC 7896 (E2), and a soil fungus *N. fischeri* KUFC 6344 (E3). Initially, a colorimetric MTT assay was performed after a 48h treatment with different concentrations of extracts (0.1 - 500 µg/ml). Doxorubicin was used as a positive control. MTT results allowed the calculus of IC50 for each extract/cell line. Those expressing an IC50 value equal or below 200 µg/ml were selected to assess the percentage of DNA damage by comet assay, clonogenic potential and ability to induce cell death by apoptosis through nuclear condensation assay. E1 extract did not exhibit anti-proliferative effects in the cell lines tested. E2 extract greatly decreased the clonogenic potential in HCT116, A375, MCF-7 and HT29, whereas E3 extract showed effect only in HCT116 and MCF-7. Both extracts significantly increased DNA damage in some cell lines. In the nuclear condensation assay, E3 extract increased apoptosis in MCF7 (10%) and HCT116 (19%) cells. Moreover, E2 extract induced a 9-17% increase of apoptosis in HT29, HCT116, MCF-7 and A375 cells. Extract-induced apoptosis was in some cases of greater extent than that triggered by doxorubicin. These results suggest apoptosis as an important mechanism for the antitumor activity of these two extracts, validating the interest for the identification of compounds to ensue further studies.

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Keywords: *Marine-derived fungi, Soil fungi, Cancer cell lines, Anti-proliferative activity, Apoptosis*

References:

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P1N33 Chemical characterization and antioxidant activity of three mushroom species from Poland

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Mushrooms contain a huge diversity of biomolecules with nutritional [1] and/or bioactive properties [2]. Phenolic compounds, ascorbic acid and tocopherols are considered to be the most responsible for their antioxidant activity [3]. In the present work, *Boletus edulis*, *Lentinus edodes* and *Xerocomus badius*, three mushroom species originated from Poland were analyzed for their chemical composition (nutritional value, primary and secondary metabolites) and antioxidant activity. The identified chemical compounds were correlated with the antioxidant properties, evaluated by DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging assay (RSA), reducing power (RP), β-carotene bleaching inhibition (CBI) and lipid peroxidation inhibition by TBARS (thiobarbituric acid reactive substances) assay (LPI). Carbohydrates were the most abundant macronutrients, followed by proteins and ash. Fructose, mannitol and threalose were the predominant sugars, but glucose was only found in *B. edulis*. Polyunsaturated fatty acids predomi-

nated over monounsaturated and saturated fatty acids. Palmitic, oleic and linoleic acids were abundant in the three samples, but *X. badius* presented considerable amounts of linoleic acid and less amounts of oleic acid. α- and β- tocopherols were quantified in all the samples, but γ-tocopherol was only present in *X. badius*. The organic acids, oxalic and fumaric, were quantified in the three samples; quinic acid was only present in *L. edodes*, and malic and citric acids were only found in *X. badius*. *p*-Hydroxybenzoic, protocatechuic and cinnamic acids were quantified in all the species, while *p*-coumaric acid was only found in *B. edulis*. This species and *X. badius* revealed the highest antioxidant properties, lowest EC50 values, which were related with the higher amounts in phenolic compounds. *B. edulis* showed the highest RSA and RP (1.80±0.01, 0.63±0.02 mg/mL, respectively), while *X. badius* presented the highest CBI and LPI (1.10±0.05, 0.37±0.02 mg/mL, respectively).

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Keywords: *Mushrooms, nutritional value, antioxidant compounds, antioxidant activity*

References:

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P1N34 Biological activity of different *Inonotus* species on human keratinocytes

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Various fungi are known for their biological activities in men and thus are used as medicinal mushrooms. *Inonotus obliquus*, the Chaga mushroom, for example was widely used in folk medicine in Russia and western Siberia. The observed anti-oxidative, anti-inflammatory and anti-cancer effects have been attributed in part to styrylpyrones. In comparison to this hispolon and hispidin isolated from *Inonotus hispidus* showed also antiviral activity. But there is only little knowledge about the biological activity of two other *Inonotus* species, namely *Inonotus nodulosus* and *Inonotus dryadeus*. The aim of this study was to investigate the effects of fruiting body extracts of these four *Inonotus* species on a human keratinocyte cell line (HaCaT) to detect possible skin protective properties. All tested extracts showed a dose dependent activity on human keratinocytes. Treatment with aqueous and ethanolic extracts of *I. obliquus* or *I. dryadeus* resulted in a dose dependent decrease in cell viability. In contrast to that treatment with *I. nodulosus* or *I. hispidus* had a slightly stimulating effect on HaCaT cell viability. The ethanolic *I. nodulosus* extract was also able to reduce a serum deprivation induced G_0/G_1 cell cycle arrest by 20%. Cells stressed by UVB broadband irradiation (20 mJ/cm^2) showed a strong cell cycle arrest in G_2/M phase. Incubation with aqueous *I. hispidus* or ethanolic *I. nodulosus* extract after irradiation reduced this effect. The study clearly shows that *Inonotus* species especially *Inonotus hispidus* and *Inonotus nodulosus* are promising candidates for both skin cosmetics and active natural compound research.