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Growth inhibitory activity of *Coprinopsis atramentaria* extract, phenolic acids, cinnamic acid and protected acetylated glucuronides on human tumor and non-tumor cell lines

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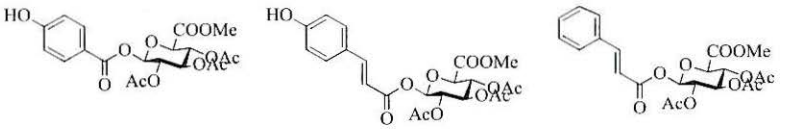
Mushrooms represent an important source of compounds with antitumor and immunostimulating properties.[1] Our attention is being focused on the capacity of phenolic acids from mushrooms to inhibit the growth of different tumor cell lines.[2]*Coprinopsis atramentaria* (Bull.: Fr.) Redhead, Vilgalys & Moncalvo, is a wild edible mushroom previously characterized by us for its nutritional composition, and also showed a notable antioxidant activity; *p*-hydroxybenzoic (4.71 mg/100 g dry weight), *p*-coumaric (0.82 mg/100 g) and cinnamic (1.70 mg/100 g) acids were identified in its phenolic extract.[3]Herein, the growth inhibitory activity on human tumor cell lines (breast- MCF-7, non-small cell lung- NCI-H460, colon- HCT-15, hepatocellular- HepG2 and cervical- HeLa) and non-tumor porcine liver primary cell culture (PLP2), was evaluated by sulforhodamine B assay, using *C. atramentaria* extract, phenolic acids, cinnamic acid and their protected glucuronides (HAGP, CoAGP and CAGP; Scheme) obtained reacting *p*-hydroxybenzoic (HA), *p*-coumaric (CoA) and cinnamic (CA) acids, respectively, with acetobromo-α-D-glucuronic acid methyl ester.[4]



HAGP CoAGP CAGP

C. atramentaria extract proved to have high antitumor potential against NCI-H460 (GI_{50}=15.13 ± 1.35 μg/mL), HCT-15 (GI_{50}=36.44 ± 3.30 μg/mL) and MCF-7 (GI_{50}=53.10 ± 4.72 μg/mL) cell lines, without toxicity for non-tumor porcine liver primary cells (GI_{50}>400 μg/mL). The protected compounds HAGP, CoAGP and CAGP revealed higher antitumor activity when compared with the parental acids for all the tested cell lines. The most active compound was HAGP against HepG2 cell line (GI_{50}=57.78 ± 5.65 μM).

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References

[1] Ferreira, I.C.F.R.; Vaz, J.A.; Vasconcelos, M.H.; Martins, A. *Anticanc. Ag. Med. Chem.* **2010**, *10*, 424.
[2] Vaz, J.A.; Almeida, G.M.; Ferreira, I.C.F.R.; Martins, A.; Vasconcelos, M.H. *Food Chem.* **2012**, *132*, 482.
[3] Heleno, S.A.; Barros, L.; Queiroz, M.-J.R.P.; Santos-Buelga, C.; Ferreira, I.C.F.R. *J. Agric. Food Chem.* **2012**, *60*, 4634.
[4] Heleno, S. A.; Ferreira, I. C. F. R.; Esteves, A. P; Ciric, A.; Glamoclija, J.; Martins, A.; Sokovic, M.; Queiroz, M-J. R. P. *Food Chem. Toxicol.* **2013**, *58*, 95.