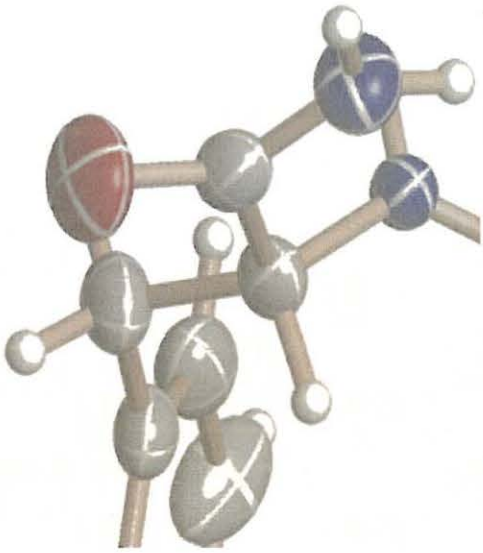

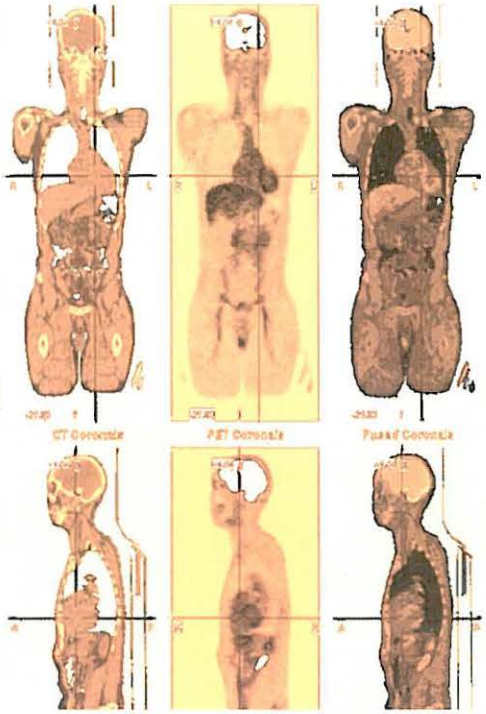

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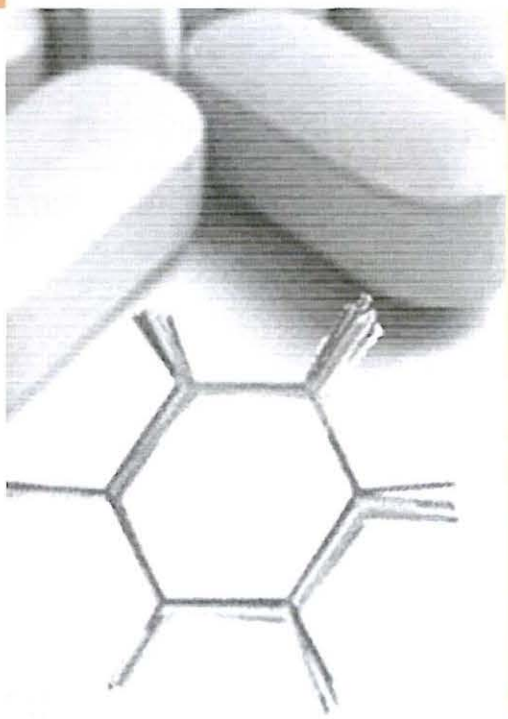

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Antimicrobial activity of *Ganoderma lucidum* extract, *p*-hydroxybenzoic and cinnamic acids and their synthetic acetylated glucuronide methyl esters

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*Ganoderma lucidum*is one of the most famous traditional medicinal mushrooms, being used as functional food and in preventive medicines [1]. *p*-Hydroxybenzoic and cinnamic acidswere previously identified, by our research group, in wild *G. lucidum* from Northeast of Portugal [2].Many studies suggest that phenolic compounds are rapidly metabolized in the human organism being glucuronidation the most prevalent metabolic pathway for phenolic compounds in humans. Despite the large data concerning the antimicrobial effects of phenolic acids [3], studies dealing with the antimicrobial properties of their metabolites or derivatives are scarce due to the fact that most of these compounds are not commercially available.Herein we describe the synthesis of protected (acetylated) glucuronide derivatives of *p*-hydroxybenzoic and cinnamic acids. Their antimicrobial activity was evaluated and compared to the parent acids and *G. lucidum* extract.*p*-Hydroxybenzoic and cinnamic acids, as also their protected glucuronide derivatives revealed high antimicrobial (antibacterial and antifungal) activity, even better than the one showed by commercial standards. Despite the variation in the order of parent acids and the protected glucuronide derivatives, their antimicrobial activity was always higher than the one revealed by the extract.The synthesized acetylated glucuronide derivatives could be deprotected to obtain glucuronide metabolites, which circulate in the human organism as products of the metabolism of the parent compounds.

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