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Screening of edible mushrooms to obtain eritadenine, a hypocholesterolemic and hypotensive compound with potential food applications as functional ingredient

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Eritadenine (2(R),3(R)-dihydroxy-4-(9-adenyl)butanoic acid) is an alkaloid derived from the secondary metabolism of edible mushrooms. It was initially isolated from shiitake mushrooms (*Lentinus edodes*) although, later on was also found in the common button mushroom (*Agaricus bisporus*). This compound showed hypocholesterolemic and hypotensive properties *in vitro* and *in vivo* as it was able to inhibit the S-adenosyl-L-homocysteine hydrolase in animal studies and the angiotensin converting enzyme (*in vitro*). The objective of this work was to carry out a screening of several mushroom species as a preliminary step to find a potentially interesting eritadenine source to design novel functional foods. Therefore, two different experimental methods were followed to compare them and to determine the levels of this biologically active metabolite within the different edible mushroom species. Results indicated that eritadenine was not an exclusive compound from *L. edodes* or *A. bisporus*, but it was also present in other species belonging to the same *Marasmiaceae family* (such as *Marasmius oreades*). Other mushrooms from closely related families (belonging to the Agaricales order too) also contained eritadenine in lower concentrations. Eritadenine concentrations within the Agaricales order ranged from 0.2 up to 1.4 mg/g DW, although these levels were depended on their varieties and developmental stages. Eritadenine can be properly detected using the two selected experimental methods. However, the method followed by Afrin et al. (2016) detected higher concentrations than those proposed by Enman et al. (2007), although it induced larger experimental deviations.

Biography

Diego Morales is doing his PhD at CIAL (Department of Production and Characterization of New Food), a Food Research Institute belonging to UAM (Universidad Autonoma de Madrid). He has graduated in Biotechnology from Universidad de Salamanca and has obtained a Master of Science degree from UAM. Currently, he is performing research activity at CIAL (Instituto de Investigacion en Ciencias de la Alimentacion), related to extraction and characterization of bioactive compounds from edible mushrooms; the study of their hypocholesterolemic activities and the formulation of ingredients beneficial for human health using environment-friendly techniques to include them into food matrices to design functional food.

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