

论文

SE-HPLC-ICP-MS联用技术在富硒蛹虫草硒蛋白形态分析中的应用研究

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摘要:

从富硒培养的虫草中提取可溶性蛋白质, 经过(NH₄)₂SO₄分级盐析, 采用ICP-MS对不同盐析组分中蛋白及硒分布进行测定, 结果表明, 富硒蛹虫草的可溶性硒含量占总硒含量的69.3%以上, 在所得的各级蛋白组分中, 除A组分(0~30%饱和度的盐析)外, 其它各组分均存在含硒蛋白, 其硒含量高低顺序为B组分(30%~50%饱和度的盐析)>C组分(50%~75%饱和度的盐析)>D组分(75%~100%饱和度的盐析)>A组分. 采用SE-HPLC-ICP-MS联机技术对样品中的硒蛋白进行分离检测, 结果表明, 其分子量分布在114000和1000之间, 且含量各异. 进一步研究结果表明, 硒在虫草体内参与了蛋白的合成, 这对于以蛹虫草为载体将无机硒有机化具有重要意义.

关键词: 蛹虫草 形态分析 硒蛋白 SE-HPLC-ICP-MS

Applying Study of SEC-ICP-MS in Speciation Analysis of Selenium-containing Proteins in Selenized Cordyceps Militaris Link

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Abstract:

It was reported in this paper that soluble protein was extracted from selenized cordyceps militaris link and classified into four groups(A, B,C and D) by salting-out with (NH₄)₂SO₄ of different saturation ranges: group A(0—30%), group B(30%—50%), group C(50%—75%) and group D(75%—100%). The distribution of protein and selenium in each group was determined by SEC-ICP-MS method. The result shows that the content of soluble selenium in selenized cordyceps militaris link accounts for 69.3% of the total amount and there was selenium in different groups except A. The order of the content in various groups was B>C>D>A. A further study of the selenium bearing protein was made by the analysis with the hyphenation technique of SEC\|DAD\|ICP\|MS. The results obtained demonstrated that their contents were different from each other and their molecular weights were distributed in the range of 114000 and 1000. It was shown that selenium participated in the synthesis of protein within the Cordycepin body, which played an important role in the transformation of inorganic selenium into organic selenium.

Keywords: Cordyceps militaris link Speciation analysis Selenium\|containing protein SEC-ICP-MS

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