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铁皮石斛中11种金属元素含量的研究

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中文摘要:目的: 全面了解不同种质、采收年龄以及市场销售的石斛类药材中11种金属含量与变异规律,为铁皮石斛药材质量评价与优质药材培育提供依据。 方法 :采集浙江人工栽培骨干基地一至三年生铁皮石斛11个种质32个样品,购买市场销售的石斛类药材11个样品;经湿法消化后采用电感耦合等离子体质谱法(ICP-MS)、原子吸收光谱法(AAS)测定11种金属元素含量。 结果 :铁皮石斛中钾、钙、镁、锰、锌、铬、铜平均质量分数分别为1 205.23,766.82,158.25,31.06,4.28,8.28,0.97 mg·kg^{-1},砷、汞、铅、镉4种重金属元素含量除1个样品镉元素超过限量指标0.07 mg·kg^{-1}外,均在规定限度范围内;种质与生理年龄对金属元素的积累存在显著的影响。 结论 :铁皮石斛含有丰富的人体必需金属元素,浙江产的铁皮石斛与市场销售的石斛类药材重金属限量指标整体上是安全的;通过品种选育可望增加人体必需的金属元素含量,降低有害金属元素含量;生理年龄对金属元素的影响与各种元素承担的生理生化作用有关。

中文关键词:铁皮石斛 种质 生理年龄 金属元素

Study on 11 mental element contents in *Dendrobium officinale*

Abstract: Objective : To find out the variation of 11 mental element contents in *Dendrobium officinale* with different germplasms and harvesting ages, the results can provide scientific basis for the quality evaluation and the breeding of *D. officinale*. Method : 32 samples with 1-3 ages were collected from cultivated fields of Zhejiang and 11 samples were collected from markets. The 11 mental element contents of samples were determined by ICP-MS or AAS. Result : The average contents of K, Ca, Mg, Mn, Zn, Cr, and Cu were 1 205.23,766.82,158.25,31.06,4.28,8.28,and 0.97 mg·kg^{-1},the contents of As, Hg, Pb, and Cd were all in limits except Cd content of one sample exceeded the standard limit 0.07 mg·kg^{-1};germplasms and physiological ages impacted mental elements contents accumulation significantly. Conclusion : There were rich essential mental elements in *D. officinale*. *D. officinale* from Zhejiang province and medical materials from market were all safe; the breeding of *D. officinale* can increase the contents of essential mental elements and reduce contents of heavy mental elements; the effect of physiological age on metal elements contents was related to each element's physiological and biochemical function.

keywords:*Dendrobium officinale* germplasm physiological age mental element

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