

低次烟叶中蛋白质提取工艺优化及氨基酸分析研究

Optimization of extraction technology and amino acid analysis of protein extracted from discarded tobacco leaf

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中文摘要:

为了充分综合利用低次烟叶蛋白资源,采用碱溶酸沉法对低次烟叶中蛋白质的提取工艺进行了研究,并利用高效液相色谱系统对其氨基酸组成进行了分析。研究表明:烟叶磨浆的最佳工艺为固液比1:17,提取温度60℃,提取液pH值8.0,磨浆两次;烟叶蛋白碱溶最佳工艺为温度60℃,pH8.0,时间60 min,搅拌条件下碱溶提取3次;烟叶蛋白酸沉工艺中,在pH3.0,4℃下静置8 h效果最佳,烟叶蛋白酸沉提取率最高为86.71%;烟叶蛋白的氨基酸分析结果显示,烟叶蛋白的氨基酸组成种类齐全,必需氨基酸含量较高,氨基酸分数较高,表明低次烟叶蛋白是一类比较优质的蛋白质资源。

英文摘要:

In order to utilize efficiently protein resource in discarded tobacco leaf, the optimum technological conditions for extracting protein from discarded tobacco leaf by the method of dissolving with alkali and depositing with acid were investigated. Moreover, amino acid composition of the protein was analyzed by HPLC system. The results showed that optimum extracting conditions for tobacco leaf grinding were: the 1:17 ratio of tobacco leaf/water, 60℃, pH8.0 and twice grinding. Optimum extracting conditions for protein were: 60℃, pH8.0, 60 min and extracting for three times with agitation. Optimum conditions for acid depositing protein were: pH3.0, 4℃ for 8 h and the extraction rate reached 86.71% under the conditions. The obtained protein contained relatively complete amino acid composition, and was rich in essential amino acids. In addition, higher amino acid score was found in the protein obtained according to the process mentioned above. It indicated that tobacco leaf protein was a kind of valuable resource.

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