

食品—研究报告

不同溶剂萃取桑叶叶绿素效率的初步研究

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摘要:

以新鲜桑叶为材料,采用有机溶剂萃取法和分光光度法对桑叶叶绿素进行萃取与含量测定,通过比较不同溶剂及其浓度(体积)、不同萃取时间对萃取效率的影响,初步获得了桑叶叶绿素的萃取工艺。研究发现,叶绿素易溶于无水乙醇、丙酮等有机溶剂,而在乙酸乙酯中的溶解度则较低;且丙酮与无水乙醇的混合使用可明显提高叶绿素的萃取效率。此外,通过萃取工艺优化试验发现,当以5片桑叶圆片为材料(d=0.6 cm),以6 mL丙酮比无水乙醇为1:2的混合溶液为萃取溶剂,暗室萃取24 h后,叶绿素的萃取效率最高,叶绿素a的含量可达2.22 mg/g、叶绿素b为0.82 mg/g,叶绿素a/b的值为2.71。本研究结果不仅为桑叶叶绿素的萃取及含量测定提供了方法性参考,而且有益于桑叶叶绿素萃取工艺的进一步优化。

关键词: 有机溶剂; 萃取效率; 叶绿素; 桑叶

Preliminary Study on Extraction Efficiency of Chlorophyll by Diferent Organic Solvents in Mulberry Leaves

Abstract:

Chlorophyll in fresh mulberry leaves was extracted by organic solvent extraction process and measured with ultraviolet-visible spectrophotometry. Effects of some parameters on extraction efficiency were compared to obtain the preliminary extraction process of chlorophyll in mulberry leaves, such as concentration or volume of different organic solvent and extraction time. It was found that chlorophyll was easy to dissolve in anhydrous ethanol and acetone, but a little bit dissolve in ethyl acetate. Moreover, extraction efficiency could be enhanced when acetone and anhydrous ethanol were combined as extraction solvent. In addition, the results of extraction process optimization showed that extraction efficiency was highest when chlorophyll in 5 circular mulberry leaves (d=0.6 cm) was extracted with 6 ml mixture solution of acetone and anhydrous ethanol (ratio of acetone to anhydrous ethanol was 1 to 2) for 24 h at dark. And the contents of chlorophyll a and b were 2.22 mg/g and 0.82 mg/g, respectively; the value of chlorophyll a/b was 2.71. This study did not only supply method guidance for extraction and measurement of chlorophyll, but was conducive to optimize the extraction process of chlorophyll in mulberry leaves.

Keywords: organic solvent extraction efficiency chlorophyll mulberry leaves

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