

題目：

中文題目：龍骨瓣荖菜(野蓮)生物活性成分最適化萃取條件與抗氧化能力之探討

英文題目：Antioxidant activity and optimum extraction conditions of bioactive compounds from *Nymphoides cristata* (Roxb.) O. Kuntze

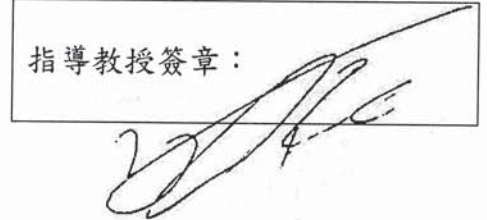
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報告日期：105/12/05

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摘要

本研究目的為探討龍骨瓣荖菜 (*Nymphoides cristata* (Roxb.) O. Kuntze) 的抗氧化能力與最適化萃取條件。龍骨瓣荖菜可食用部位通常為假莖，因此在採收時會產生許多農業副產物。目前對龍骨瓣荖菜之研究報告甚少，本實驗則以龍骨瓣荖菜之假莖、根部、蓮葉等三種部位及四種不同萃取條件(95°C熱水、80%乙醇、65%乙醇、50%乙醇)進行抗氧化能力及總多醣含量分析並探討最適萃取條件。初步結果顯示各溶劑之萃取率均高於20%，其中又以假莖部位之萃取率最高；藉由抗氧化活性成分試驗得知，80%乙醇萃取物無論在總酚或總類黃酮含量均明顯高於其他萃取條件，而抗氧化力之表現，萃取物濃度在1mg/g條件下，其總抗氧化力依序為蓮葉52.29%、假莖25.55%、根部15.31%；還原力由高到低分別為33.98%~14.31%；螯合亞鐵能力的結果與前面兩者相同(37.53%~69.32%)。結果顯示蓮葉之以80%乙醇萃取其各項抗氧化活性最佳，而多醣方面則以假莖的含量最多。推斷龍骨瓣荖菜之抗氧化能力來自於多酚類或類黃酮，未來可著墨於類黃酮成分分析、化妝品研發，藉此提高龍骨瓣荖菜附加價值與增加其副產物的利用率。

關鍵字：龍骨瓣荖菜、抗氧化能力、總多醣含量、最適萃取條件

Abstract

The objectives of current study were to identify the optimum extraction conditions and antioxidants activity in *Nymphoides cristata* (Roxb.) O. Kuntze. Normally, the common edible part of *Nymphoides cristata* (Roxb.) O. Kuntze is pseudostems. Consequently, many agricultural byproducts are produced after harvesting. Currently, rare documents can be retrieved and reviewed on *Nymphoides cristata* (Roxb.) O. Kuntze. In this study was carried out the antioxidants activity and total polysaccharide content analysis to explore the optimum extraction conditions from pseudostems, roots, lotus leaves with four different extraction conditions (95°C hot water, 80% ethanol, 65% ethanol, 50% ethanol). After the preliminary analysis the extraction rate from four different extraction conditions are more than 20%, and the pseudostems is the highest in others conditions. The 80% ethanol extraction is higher than others conditions no matter what in the total phenols or the total flavonoid from antioxidant activity component analysis; in the concentration of 1mg/g the trolox equivalent antioxidant capacity have the lotus leaves 52.29%, pseudostems 25.55%, roots 15.31%; the reducing power from high to low were 33.98%~14.31%; in the ferrous iron chelated test the same as others tests (37.53%~69.32%). The results showed that the lotus leaves show the best antioxidants activity in the 80% ethanol extract, and the pseudostems content the most polysaccharide in others samples. Concluded that the antioxidant activity of *Nymphoides cristata* (Roxb.) O. Kuntze are from polyphenols or flavonoids. In the future to focus on flavonoid composition analysis, cosmetics research and development.

Keywords: *Nymphoides cristata* (Roxb.) O. Kuntze, antioxidants activity, total polysaccharide content, optimum extraction conditions

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