

檸檬桉精油分析及檸檬桉萃取物之抗氧化及抑菌性之研究

江昶逸、李世傑、林麗雲

E-mail: 325022@mail.dyu.edu.tw

摘要

本研究以兩種(有腺毛和無腺毛)檸檬桉葉進行水蒸氣蒸餾、超音波萃取、溶劑(甲醇)萃取及超臨界萃取等方法取得檸檬桉葉精油及萃取物(共有水蒸氣蒸餾之精油與水萃物、超音波萃取物、溶劑萃取物以及超臨界萃取物等樣品,皆以甲醇為溶劑)來比較其抗氧化及抗菌性。在香氣成分分析方面,以GC和GC-MS分析檸檬桉葉精油,發現有腺毛的檸檬桉葉主要之香氣成分有citronellal(約有69.51%)和citronellol(約16.00%)等96種成分,而無腺毛的檸檬桉葉主要之香氣成分有1,8-cineole(約有62.70%)和 α -pinene(約13.44%)等102種已辨識之成分。抗氧化活性之比較方面,進行DPPH(1,1-diphenyl-2-picrylhydrazyl)自由基清除力、亞鐵離子螯合力、總抗氧化能力(TEAC)及清除超氧陰離子能力之測定。其中DPPH自由基清除力以有腺毛檸檬桉葉水萃物和有腺毛檸檬桉葉精油表現較好。亞鐵離子螯合力的表現以有腺毛檸檬桉葉水萃物 and 無腺毛檸檬桉葉精油較佳。總抗氧化能力方面以無腺毛檸檬桉葉水萃物 and 無腺毛檸檬桉葉精油表現較好。超氧陰離子清除力以有腺毛檸檬桉葉水萃物 and 有腺毛檸檬桉葉精油表現較好。抗菌性方面,採用紙錠擴散法,分別對仙人掌桿菌(*Bacillus cereus* 弘光大學D402實驗室BC1)、李斯特菌(*Lister monocytogenes* BCRC14846)、金黃色葡萄球菌(*Staphylococcus aureus* CCRC13825)、沙門氏桿菌(*Salmonella enterica* serovar Typhimurium ATCC14028)以及大腸桿菌(*Escherichia coli* ATCC25922)等菌種進行三種濃度的抑菌測試。發現無腺毛檸檬桉葉精油對仙人掌桿菌(濃度1mg/mL, 抑菌圈直徑 19 ± 0.5 mm)、李斯特菌(濃度1mg/mL, 抑菌圈直徑 18 ± 0.75 mm)和有最好的效果。而沙門氏桿菌則以有腺毛檸檬桉精油(濃度1mg/mL, 抑菌圈直徑 13.5 ± 0.5 mm)有最好的抑菌效果。對於金黃色葡萄球菌為有腺毛檸檬桉葉超臨界萃取物(濃度1mg/mL, 抑菌圈直徑 20.5 ± 0.75 mm)的效果最好。大腸桿菌方面則是以有腺毛檸檬桉葉精油(濃度1mg/mL, 抑菌圈直徑 12.5 ± 0.5 mm)表現最佳。

關鍵詞: 檸檬桉、精油、氣相層析質譜、抑菌、抗氧化

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