Quantification of Rosmarinic Acid, Caffeic Acid and Ferulic Acid in Vitro from Lippia Citriodora

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ABSTRACT

Lippia Sp. is believed to contain high level of flavonoid and it is addressed that flavonoid has something about antioxidant activity. In the study, plant tissue culture from Lippia Citriodora as shoot cultures in MS medium supplemented with 1.0 mgL-1 BA and 0.2 mgL-1 NAA. For regeneration of shoot, stems in seedling culture were cultured in the medium. Those could promote growth and multiply which reached high biomass of plant culture and callus.

The aim of this study was to compare DPPH radical scavenging properties of extracts from commercial sample, plant culture and callus, and to evaluate quantity of rosmarinic acid (RA), caffeic acid (CA) and ferulic acid (FA). Radical scavenging activity of commercial sample was 96.5% while that of plant culture and callus was significantly increased ($P<0.05$) by 129.5% and 121.4%, respectively. Content of RA, CA and FA was analyzed by HPLC with RP C-18 column and UV detector (wavelength 320 nm). The mobile phase was methanol containing 0.1% phosphorous acid (solution A) and water containing 0.1% phosphorous acid (solution B) by gradient elution. The retention time of RA, CA and FA was 32 min, 13 min and 20 min, respectively. Analysis of RA, CA and FA in those samples, there was a peak at 21 min of retention time. This showed that content of FA in commercial sample, plant tissue and callus was 159.4, 65.7 and 94.3 mg/g DW, respectively. Nevertheless, RA and CA could not be detected in the samples.

Keywords : Lippia Citriodora、Tissue culture、DPPH radical scavenging、Rosmarinic acid、Caffeic acid、Ferulic acid

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