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شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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جامعة عين شمس

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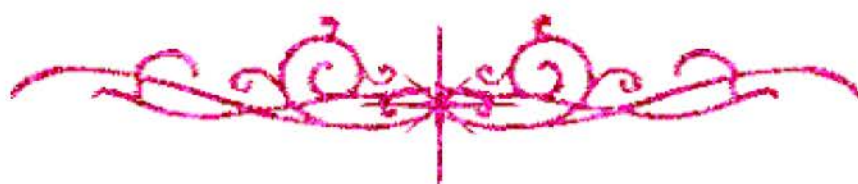
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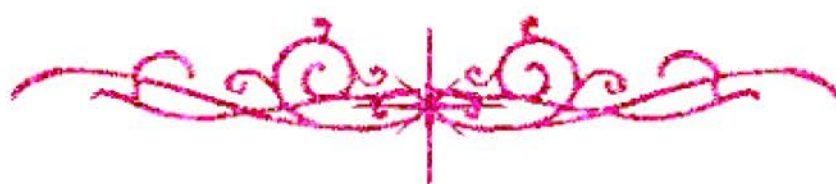
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**BIOTECHNOLOGICAL STUDIES ON MEDICINAL
PLANT *PLECTRANTHUS BARBATUS* ANDREWS**

By

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B.Sc., Agric. Sc. (Biotechnology), Cairo Univ. (2012)

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Of
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ABSTRACT

Dina Sayed Mohamed: Biotechnological studies on medicinal plant *Plectranthus barbatus* Andrews. Unpublished M.Sc. Thesis, Department of Genetics, Faculty of Agriculture, Ain Shams University, 2019

This study aimed at introducing the new species *Plectranthus barbatus* Andrews (*Coleus forskoli*) belonging to family: *Lamiaceae* to the Egyptian flora for its medicinal importance due to the presence of active ingredient forskolin. The conservation of *P. barbatus* through *in vitro* micro-propagation of stem nodes showed that the two cytokinin TDZ and Kin gave the best number of roots and shoot length, respectively. Production of forskolin using callus culture was induced in both leaf and stem node explants with 2,4-D auxin, while negative results appeared in the control. For the extraction and quantitative estimation of forskolin by HPLC, the forskolin content in leaf callus on MS medium containing 2mg/L 2,4-D recorded the highest value (467.76 mg/g) in the fifth subculture. Moreover, the highest forskolin content in stem callus on MS medium containing 0.5mg/L 2,4-D was 751.96 mg/g in the fifth subculture. Using elicitor feeding in leaf callus gave the best forskolin content with sucrose or casein, while in stem callus, casein only gave the best forskolin content. The relative gene expression analysis using quantitative real time-PCR (qRT-PCR) in the previous stage was detected by using primer pairs for three *Cytochrome P450* genes. *P450c4* and *P450c6* showed up-regulated expression in stem callus than leaf callus, while *P450c7* gave up-regulated expression in leaf callus than stem callus compared with the control (mother plant). These results confirmed the importance of *Cytochrome P450* genes expression in stem and leaf.

Keywords: *Plectranthus barbatus* Andrews, Forskolin, Micropropagation, Callus culture, HPLC, Gene expression, Quantitative real time (RT-PCR), *Cytochrome P450* genes

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