

**STUDIES ON THE CHEMICAL CONSTITUENTS
OF *CASSIA* SP. AND THEIR ACTIVITIES
AS ANTIOXIDANT AGENTS**

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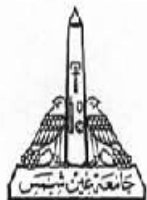
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دراسات على المحتوى الكيميائى لنبات الكاسيا وفاعليته كمواد مضادة للأكسدة

رسالة ماجستير مقدمة من

عزت السيد عبد اللطيف

معهد تيودور بلهارس للأبحاث
للحصول علي درجة الماجستير في
العلوم (الكيمياء العضوية)

تحت إشراف

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SUMMARY

- Evaluation of the methanolic extracts of seven *Cassia* species as antioxidant agents using different methods as DPPH, total antioxidant capacity and reducing power assay. The results revealed that the seven methanolic extracts have antioxidant properties whereas the methanol extract of *Cassia glauca* was the most active.
- The phenolic content of each methanol extract of seven *Cassia* species was determined. The results exhibited that there is a highly correlation between the total phenolic content and ability of the extract as antioxidant agents. Because of *C.glauca* has high phenolic content, it showed high antioxidant activity.
- Screening of the seven *Cassia* species as antimicrobial agents against certain bacterial and fungi species showed there is a correlation between the phenolic content and the ability of the extract as antimicrobial agents.
- Owing to the high antioxidant antimicrobial of the methanolic extract of *C. glauca*, it was subjected to fractionation and each fraction was tested as antioxidant and antimicrobial agents. The results exhibited that there are a correlation between the phenolic content and the activity of the extract. Ethyl acetate fraction derived from

the methanolic extract of *C.glauca* showed high antioxidant and antimicrobial agents.

- Each fraction derived from the methanolic extract of *C.glauca* was subjected to chromatographic separation using different techniques and the structure of the isolated compounds were elucidated through chemical and spectroscopic analysis as UV, IR, NMR (¹H-NMR, ¹³C-NMR) and mass spectra.

- From the chloroformic extract, three compounds were isolated and identified using different chromatographic and spectroscopic techniques as Di-(2-ethyl hexyl) phthalate (DEHP) **(1)**, apigenin **(2)** and luteolin **(3)**.

- Chromatographic isolation of ethyl fraction of *C.glauca*, led to isolation of pure compounds their structures were identified as quercetin **(4)**, quercetin-3-*O*-β-D-glucopyranoside **(5)** and kaempferol-3-*O*-α-L-rhamnopyranosyl (1→6) β-D-glucopyranoside **(6)**.

- From the butanolic extract derived from methanolic extract of *C.glauca*. Their structures were identified as D(+)-Pinitol **(7)**, quercetin-3-*O*-α-L-rhamnopyranosyl (1→6) β-D-glucopyranoside (Rutin) **(8)** and quercetin-3-*O*-[(1→2) - α-L-rhamnopyranosyl] [(1→6) - α-L-rhamnopyranosyl] β-D-glucopyranoside **(9)**.

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