

# Chemical and pharmacological evaluation of the non-flowering aerial parts of *Acacia modesta* Wall. cultivated in Egypt

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## Abstract

**Background:** *Acacia modesta* Wall. (*A. modesta*), often recognized as Phulai, is belonging to family Fabaceae and sub-family Mimosaceae. *A. modesta* has many beneficial uses. Leaves, wood, flowers, and gum of *A. modesta* have been used frequently for multiple therapeutic purposes.

**Results:** The chemical investigation of butanol fraction of *A. modesta* non-flowering aerial parts yielded Vitexin-4 / D-glucopyranoside and Apigenin-6,8-di-C- /D-glucopyranoside in a flavone mixture as well as \* /D-glucopyranosyl (1-3+ /D-glucopyranosyl)-3/ /hydroxy-11-oxo-olean-12-en-28-oic acid) an oleanane-type triterpenoidal saponin.

Metabolite profiling via ultra-performance liquid chromatography-electrospray ionization-mass spectrometry (UPLC/ESI-MS) of the ethyl acetate fraction resulted in recognizing of eighteen compounds tentatively compared with previously published data. Quantitative measurement of the overall value of flavonoids of *A. modesta* was found to be 2.824" g/100" i"Ö"0.01 calculated as quercetin. The acute toxicity study of the ethanol extract proved that the plant under investigation is safe and nontoxic to the male albino mice used. The anti-hyperglycemic activity of the ethanol extract performed on type 2 diabetic rats proved that the most potent dosage was 200 mg/kg b. wt. after 4 and 4 weeks of treatment respectively compared to metformin. Furthermore, evaluation of the hepato-protective activity of the ethanol extract of the plant under investigation showed that the most potent extract was with a dose level of 200 mg/kg b. wt. after 3 and 10 days of continuous treatment compared to silymarin.

**Conclusion:** It can be concluded that *A. modesta* Wall. cultivated in Egypt could be used as a promising antidiabetic agent and a hepato-protective agent against hepatocellular damage induced by hepatotoxins.

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