

Evaluation of antioxidant and antidiabetic properties of *Carpesium abrotanoides* L. *in vitro*

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Objectives

The aim of the present study was to evaluate the antidiabetic and antioxidant properties of the aerial parts of *Carpesium abrotanoides* L. (CAL) through various *in vitro* models. The methanolic extract (CAME) exhibited potent α -glucosidase and antioxidant inhibitory activity. Based on its strong α -glucosidase inhibitory and antioxidant activities, CAME appears to be a potential herb for the treatment of diabetes.

Materials and Methods

Extraction

The dried aerial parts of *C. abrotanoides* (500 g, dry weight) were extensively extracted with 80% aqueous methanol at room temperature for 3 days and filtered through a Whatman No. 1 filter paper. The extract was concentrated using rotary vacuum evaporator to give a residue. The residue was freeze-dried to obtain a dry powder (14 g) and kept in a glass bottle (stored at 4°C until used). For evaluating the extract through various *in vitro* assays, the powder was first dissolved in methanol to obtain CAL methanolic extract (CAME) with different concentrations depending on the study type.

Determination of antidiabetic & antioxidant potential *in vitro*

- *α -Glucosidase inhibitory potential*

Bakers Yeast

- *Antioxidant studies*

NOS Assay, Lipid Peroxidation assay, DPPH Assay, ABTS Assay

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Results

The extract exhibited potent α -glucosidase inhibitory activity with IC_{50} value of 44.22 $\mu\text{g/ml}$. Kinetic studies revealed non-competitive inhibition of CAME on α -glucosidase enzyme. The antioxidant activities of CAME, measured in terms of IC_{50} values using 1,1-diphenyl-2-picrylhydrazyl (DPPH), 2,2'-azinobis-3-ethylbenzothiazoline-6-sulfonic acid (ABTS), ferrous ion chelating (FIC) and nitric oxide scavenging (NOS) were 111.2, 15.6, 150.2 and 798.5 $\mu\text{g/ml}$, respectively. CAME also showed significant reducing capability by ferric reducing antioxidant power (FRAP) assay. Inhibition of lipid peroxidation in CAME was found to be dose-dependent. It possessed considerable amounts of phenolics (88 mg gallic acid equivalent/g of extract) and flavonoids (12 mg quercetin equivalent/g of extract). Based on its strong α -glucosidase inhibitory and antioxidant activities, CAME appears to be a potential herb for the treatment of diabetes.