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Screening of *Camellia oleifera Abel.* seeds extract for free radical scavenging activity

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Abstract
The main objective of the study was to find the antioxidant value of *Camellia oleifera Abel* seeds. Antioxidants have been reported to prevent oxidative damage caused by free radical and can be used in cardiovascular and anti-inflammatory diseases. The free radical scavenging activity of ethanolic extract of *Camellia oleifera Abel* seeds was studied with the help of a stable DPPH radical. Anti-oxidant activity was measured by 1, 1-diphenyl-2-picryl-hydrazile (DPPH) free radical scavenging assays method and total phenolic and tannin content was also determined. The ethanolic extract was found to have strong free radical scavenging capacities, with IC50 values lower than 0.8 mg/ml.

Key-Words: *Camellia oleifera Abel*; Seeds; Free radical scavenging activity; Antioxidant, Phenols; Tannins

Introduction
The DPPH free radical scavenging assay is simple and widely used for bioactive compound discovery. In conjunction with a microtitre plate reader, the assay can be easily carried out as a high throughput test[1].

Material and Methods
Chemicals
1, 1-Diphenyl-2-picryhydrazyl (DPPH) was bought from Aldrich (Shanghai). Analytical grade methanol was from Ranbaxy chemicals Pvt. Ltd (Mumbai). A Multiscan (Ascent) microtitre plate reader was purchased from Thermo Bio analysis Company (Finland).

Collection of Plant materials
The seeds of the plant belonging to the genus Camellia (Theaceae) were collected from Korakundah, Nilgiri estate (Tamil Nadu) and were authentificated. The seeds were used for the extraction and anti scavenging activity.

Method of extraction[2]
The seeds were dried and made into fine powder by grinding and extracted for 48 hrs at room temperature with ethanol. For every milligram of seeds powder, 10 ml of ethanol were added. Extraction was carried out under shaking with 80 rev/min. The suspensions were centrifuged, and the supernatant diluted at different concentrations, which were used as test samples.

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Quantitave analysis
Quantitative measurement of radical scavenging properties was carried out in a 96 wells microtitre plate assay[1]. The reaction mixture contained 100 ml of test samples (or ethanol as a blank) and 100 ml of a 1 mM solution of DPPH in EtOH. 100 ml of 10 mM solutions of ascorbic acid was used as positive control. Decoloration was measured at 517 nm after incubation for 20 min. Measurements was performed at least in triplicate. The actual decrease in absorption induced by the test compounds was compared to that of the positive controls. IC50 values calculated denote the concentration of sample required to scavenge 50% of DPPH radical.

Results and Discussion
The ethanolic extract of *Camellia oleifera Abel* seeds were screened for DPPH radical scavenging activity[1]. The extract had shown strong free radical scavenging capacities, with IC50 values lower than 0.8 mg. The activity of the extract is due to the active constituent present in the seeds, Theanine. The seeds contain tannins and other polyphenols such as flavonoids. Theanine is responsible for the strong free radical scavenging activities[3]. It is well known that tannins have anti-inflammatory, antidiarrheic and wound healing properties. Phenols such as methyl gallate possess antimicrobial properties, and physiological redox processes in the microbial cells may be disrupted by the strong reducing activity of tannins[4]. The anti-inflammatory properties of tannins are mainly due to their free radical scavenging activities, as free radical

scavenders can stop some of the processes of inflammatory response[5].

Conclusion

The ethanolic extract of *Camellia oleifera Abel* seeds was found to have strong free radical scavenging capacities, with IC50 values lower than 0.8 mg/ml.

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Fig. 1. *Camellia oleifera Abel* plant.

Fig. 2. *Camellia oleifera Abel* seeds