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# FREE RADICAL SCAVANGING ACTIVITY OF LEAVES OF C*INNAMOMUM CAMPHORA*

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**ABSTRACT**

This study is done on leaves extract of C*innamomum Camphora.* Extraction of leaves of *Cinnamomum Camphora* yielded 10.12% of Pet.Ether extract, 13.60% of Chloroform extract, 10.59% of Acetone extract and 17.02% of methanol extract. Methanol extract of *Cinnamomum camphora* leaves showed maximum antioxidant activity in comparison to all extracts using DPPH method. The concentration of 600 µg/ml of methanol extract showed 91.92% anti-oxidant activity in comparison to all extracts. Acetone showed 84.76% . Both Pet.Ether and Chloroform extracts showed weak anti-oxidant activity. Ascorbic acid was used as a standard for comparison to extracts which showed 96% activity.

**Keywords:** DPPH (1,1-diphenyl-2-picrylhydrazyl), Pet.Ether (Petroleum Ether)

## INTRODUCTION

Antioxidant is an inhibitor of the process of oxidation, even at relatively small concentration and thus have diverse physiological role in the body.[1]Antioxidant constituents of plant materials act as radical scavengers, and convert the radicals to less reactive species. Spices and herbs in food as medicine is a current hot trend that is capturing everyone's imagination with images of a new magic bullet or fountain of youth. The intake of antioxidant compounds present in food is an important health-protecting factor. The increasing interest in the search for natural replacements for synthetic antioxidants has led to the antioxidant evaluation of a number of plant foods.Plants and other organism have in built wide range of mechanism to combat with these free radical problems. In plants and animals these free radicals are deactivated by *antioxidants.* These antioxidants act as an inhibitor of the process of oxidation, even at relatively small concentration and thus have diverse physiological role in the body. The molecule of 1,1-diphenyl-2-picrylhydrazyl (α,α-diphenyl-β-picrylhydrazyl; DPPH) is characterized as a stable free radical by virtue of the delocalization of the spare electron over the molecule as a whole, so that the molecules do not dimerise, as would be the case with most other free radicals.[2]Therefore DPPH method can be used to evaluate antioxidant activity of plants.Thus there is a need to explore the antioxidant properties of the plant *Cinnamomum Camphora* too.*Cinnamomum Camphora* is a large evergreen tree The leaves have a glossy, waxy appearance and smell of camphor when crushed. EtOAc and BuOH extracts displayed strong anti-oxidative activity with IC(50) values of 14 and 15 microM, respectively, when tested by the 1,1-diphenyl-2-picrylhydrazyl (DPPH).[3]The anthelmintic activity of the aqueous extract of *Cinnamomum Camphora* leaves had also been reported.[4]

## MATERIAL & METHOD

**Collection of plant Material**: Leaves of *Cinnamomum camphora* were collected from locality of Dehradun(India).The collected plant material was washesd with water to remove other undesirable material and dried under shade.

**Preparation of Extract**: The air-dried leaves (500 gm) of *Cinnamomum camphora* were crushed. The crushed leaves were extracted with different solvents of increasing polarity viz. Petroleum ether,Chloroform,Acetone and Methanol using Soxhlet apparatus. The extract was evaporated till dryness to obtain residue. These extracts were concentrated under reduced pressure.

**Preparation of DPPH:-**DPPH is a highly oxidisable compound. It is oxidized in light, so DPPH was prepared in dark. 20 mg of DPPH was weighed accurately and dissolved in methanol as solvent..

**Preparation of standard Ascorbic acid solution:-** Ascorbic acid is an strong antioxidizing agent. It was taken as standard. Standard solution of ascorbic acid was prepared. *viz.* 100µg/ml , 200µg/ml , 300µg/ml, 400µg/ml, 600 µg/ml.

**Preparation of different concentration of Cinnamomum camphora leaves extract:-**Different concentration of the test sample *Cinnamomum camphora* leaves extract which was to be examined for antioxidant activity was prepared. *viz.* 100µg/ml , 200µg/ml , 400µg/ml, 600 µg/ml.

**Preparation of test sample*:-*** 3 ml of different concentration of test sample *Cinnamomum camphora* extract was mixed with 1 ml of DPPH solution in dark.

**Preparation of standard:-** 3 ml of different concentration of standard solution of ascorbic acid was mixed with 1 ml of DPPH solution in dark.The prepared solution of ascorbic acid and test sample was incubated for 1/2 half an hour.

**Measurement of absorbance:-** Absorbance was taken with the help of U.V. Spectrophotometer at 517 nm.

**Calculation**[5]

The % activity of individual concentration of individual extract was calculated from the following formula:-

$$\%\ Activity = \frac{Abs.of\ control - Abs.\ of\ individual\ concentration}{Abs.of\ control} \times 100$$

**Abs. =** Absorbance. % Acitivity= antioxidant activity in percentage

**RESULTS**:

**Table-I Absorbance of Pet. Ether extract of *Cinnamomum camphora*:**

| S. no. | Concentration In(µg/ml) | Pet. Ether extract | % |
|---|---|---|---|
| 1 | Control | 1.78 | - |
| 2 | 100 | 1.53 | 14.04% |
| 3 | 200 | 1.27 | 28.65% |
| 4 | 400 | 0.96 | 46.06% |
| 5 | 600 | 0.89 | 50.00% |

%= percent absorbance

**Table-II Absorbance of Acetone extract of *Cinnamomum camphora*:**

| S. no. | Concentration In(µg/ml) | Acetone extract | % |
|---|---|---|---|
| 1 | Control | 2.103 | - |
| 2 | 100 | 1.760 | 16.19% |
| 3 | 200 | 0.719 | 66.19% |
| 4 | 400 | 0.324 | 84.76% |
| 5 | 600 | 0.329 | 84.35% |

%= percent absorbance

**Table-III Absorbance of Methanol extract of *Cinnamomum camphora***

| S.no. | Concentration In(µg/ml) | Methanol extract | % |
|---|---|---|---|
| 1 | Control | 2.128 | - |
| 2 | 100 | 0.782 | 63.20% |
| 3 | 200 | 0.205 | 90.56% |
| 4 | 400 | 0.173 | 91.80% |
| 5 | 600 | 0.171 | 91.92% |

%= percent absorbance

**DISCUSSION:** Methanol extract of *Cinnamomum camphora* leaves showed maximum antioxidant activity in comparison to all extracts. The concentration of 600 µg/ml of methanol extract showed 91.92 % anti-oxidant activity,which shows it's potency to be used as a good source of antioxidants.Acetone showed 84.76%.Both Pet..Ether and Chloroform extracts showed weak anti-oxidant activity. Ascorbic acid was used as a standard for comparison to all extracts which showed 96% activity.It can be concluded that future research can be done to apply *Cinnamomum camphora* in antioxidant drugs.

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