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ISSN: 0975-7538
Research Article

# Antioxidant potential of ethanolic extract of aerial parts of *Coleus Vettiveroides* k.c. jacob

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**ABSTRACT**

The objective of the present investigation was to evaluate the antioxidant potential of ethanolic extract of aerial parts of C*oleus vettiveroides*. Antioxidant activity of ethanolic extract of C*oleus vettiveroides* was assessed by three different in-vitro model of measuring antioxidant profile *i.e.* total antioxidant activity, FRAP assay and estimation of total flavonoid. Significant total antioxidant activity was found in ethanolic extract of C *oleus vettiveroides*. The $IC_{50}$ values of the ethanolic extract of *Coleus vettiveroides* and ascorbate were found to be 180µg/ml and 410µg/ml respectively. The ethanolic extract of C*oleus vettiveroides* also shows significant result in FRAP assay method. High fl avonoid content was found in ethanolic extract of C*oleus vettiveroides.* The high antioxidant capacity observed for ethanolic extract of C*oleus vettiveroides* suggests that this plant could be used as an additive in the food industry providing good protection against oxidative damage.

**Keywords:** *Coleus vettiveroides;* Labiatae; Total antioxidant activity; FRAP assay; Total flavonoid

## INTRODUCTION

Antioxidants which are present naturally in the plants search destructive free radicals from our body. Free radical is any species equipped for autonomous presence that contains one or more unpaired electrons which responds with other atom by taking or giving electrons, and included in numerous pathological conditions (Madhavi DL et al., 1996). It is conceivable to diminish the danger of chronic sicknesses and avoid progress movement by either improving the body's natural cell antioxidant barriers or by supplementing with demonstrated dietary cancer prevention agents (Stanner SA et al.,2000).

Manufactured cancer prevention agents like butylated hydroxyl toluene (BHT) and butylated hydroxyl anisole (BHA) ordinarily utilized as a part of nourishments have reaction and are cancer-causing (Branen AL., 1975). Plant poly phenolic mixes, for example, flavonoids are portrayed as foragers of receptive oxygen species (Chen S., 1993). As of late, the capacity of phenolic substances including flavonoids and phenolic acids to go about as cancer prevention agents has been widely examined (Rice-Evans C et al., 1994). Most wellsprings of regular cancer prevention agents start from plant materials, yet the substance of Polyphenolic mixes in the seeds and pericarp of tropical and subtropical verdure have inadequately been accounted for (Elizabeth M, Williamson., 2002).

*Coleus vettiveroides* has a place with the family Labiatae, has demonstrated cytotoxic properties, antitumor movement, and diuretic action (Saraswathy, An et al., 2011). *Coleus vettiveroides* is solution for queasiness and retching (Abdel – Mogib M et al.,2002) . Subsequently, the target of the present study was to assess the in-vitro cell antioxidant action of ethanolic concentrate of airborne parts of *Coleus vettiveroides* were assessed by three in vitro free radical searching model.

## MATERIALS AND METHOD

### Collection and Identification of Plant materials

The aerial parts of *Coleus vettiveroides* were gathered from neyyatinkara, Thiruvananthapuram, Kerala. Taxonomic distinguishing proof was produced using Botanical Survey of Medical Plants Unit Siddha, Government of India. Palayamkottai. The elevated parts of *Coleus vettiveroides,* were dried under shade, isolated, pounded by a mechanical processor and went through a 40 cross section sifter.

### Preparation of Extracts

The above powdered materials were successively extracted with ethanol by hot continuous percolation method in Soxhlet apparatus (Harborne J.B., 1984) for 24 hrs. The extracts were concentrated by using a rota-

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Received on: 14-10-2015
Revised on: 01-11-2015
Accepted on: 05-11-2015

**Table 1: Total antioxidant activity of ethanolic extract of Coleus vettiveroides**

| S. No | Concentration (µg/ml) | % of activity(±SEM)* | |
|---|---|---|---|
| | | Sample (Ethanolic extract) | Standard (Ascorbate) |
| 1 | 125 | 38.52 ± 0.017 | 26.87 ± 0.08 |
| 2 | 250 | 56.24 ± 0.011 | 30.30 ± 0.05 |
| 3 | 500 | 70.30 ± 0.013 | 60.64 ± 0.02 |
| 4 | 1000 | 75.73 ± 0.027 | 55.23 ± 0.01 |
| | | **$IC_{50}$ = 180µg/ml** | **$IC_{50}$ = 410 µg/ml** |

*All values are expressed as mean ± SEM for three determinations

**Table 2: FRAP assay of ethanolic extract of Coleus vettiveroides**

| S. No | Concentration (µg/ml) | % of activity(±SEM)* | |
|---|---|---|---|
| | | Sample (Ethanolic extract) | Standard (Ascorbate) |
| 1 | 125 | 35.36 ± 0.041 | 72.04 ± 0.01 |
| 2 | 250 | 45.89 ± 0.090 | 82.05 ± 0.03 |
| 3 | 500 | 55.14 ± 0.021 | 86.04 ± 0.02 |
| 4 | 1000 | 68.61 ± 0.078 | 98.07 ± 0.04 |
| | | **$IC_{50}$ = 270µg/ml** | **$IC_{50}$= 50µg/ml** |

*All values are expressed as mean ± SEM for three determinations

| S.No | Extracts | Total flavonoids content (mg/g) (±SEM)* |
|---|---|---|
| 1 | Ethanolic extract of *Coleus vettiveroides* | 3.67 ± 0.42 |

*All values are expressed as mean ± SEM for three determinations.

ry evaporator and subjected to freeze drying in a lyophilizer till dry powder was obtained.

**Determination of Antioxidant activity**

**Total antioxidant activity (Phosphomolybdic acid method)**

The cancer prevention agent movement of the specimen was assessed by the change of Mo (VI) to Mo (V) to shape phosphomolybdenum complex (Prieto et al., 1999). An aliquot of 0.4 ml of test arrangement was consolidated in a vial with 4 ml of reagent arrangement (0.6 M sulfuric corrosive, 28mM sodium phosphate and 4mM ammonium molybdate). The vials were topped and hatched in a water shower at 950C for 90 min. After the specimens had cooled to room temperature, the absorbance of the blend was measured at 695 nm against a clear. The cancer prevention agent action was communicates in respect to that of ascorbic corrosive (Jaslin Edward. J et al., 2011).

**FRAP assay**

A changed technique for (Benzie and Strain., 1996) was received for the FRAP examine. The stock arrangements included 300 mM acetic acid buffer, pH 3.6, 10 mM TPTZ (2, 4, 6-tripyridyl-S-triazine) arrangement in 40 mM HCl and 20 mMFecl3. 6H2O. The crisp mixing so as to work arrangement was readied 25 ml acetic acid buffer, 2.5 ml TPTZ and 2.5 ml Fecl3 .6H2O. The temperature of the arrangement was raised to 370 C before utilizing. Plant extracts (0.15 ml) were permitted to respond with 2.85 ml of FRAP answer for 30 min oblivious condition. Readings of the shaded item (Ferrous tri pyridyl triazine complex) were taken at 593 nm. The standard bend was direct somewhere around 200 and 1000 µM Feso4. Results are communicated in µM (Fe (II)/g dry mass and contrasted and that of ascorbic acid.

**Total flavonoids (**Cameron GR *et al*., 1943)

0.2g of the plant material was ground with ethanol - water in 2 distinct proportions in particular 9:1 and 1:1 separately. The homogenate was separated and these 2 proportions were joined. This was vanished to dryness until the greater part of the ethanol has uprooted. The resultant watery concentrate was removed in an isolating channel with hexane or chloroform. The dissolvable extricated fluid layer was concentrated 0.5 ml of aliquot of concentrate was pipetted-out in a test tube. 4 ml of the vanillin reagent (1% vanillin in 70% conc. $H_2SO_4$) was included and kept in a bubbling water shower for 15 mins. The absorbance was perused at 360 nm. A standard was controlled by utilizing catechol (110 µg/ml)

**RESULTS AND DISCUSSION**

**Determination of Total antioxidant activity by phosphomolybdic acid method:**

The rate of aggregate cancer prevention agent movement of ethanolic concentrate of *Coleus vettiveroides* outlined in Table 1. The ethanolic concentrate of *Cole-*

*us vettiveroides* showed a most extreme aggregate cell antioxidant movement of 75.73% at 1000 µg/ml while for ascorbate (standard) was observed to be 55.23 % at 1000 µg/ml. The IC50values of the ethanolic concentrate of *Coleus vettiveroides* and ascorbate were observed to be 180µg/ml and 410µg/ml extract.

**FRAP assay**

The decreasing limit of a compound may serve as a noteworthy pointer of its potential cell antioxidant movement. Table 2 delineates the FRAP estimations of ethanolic concentrate of *Coleus vettiveroides* and ascorbate at different focuses (125, 250, 500, 1000 µg/ml). The most extreme lessening capacity at 1000µg/ml for ethanolic concentrate of *Coleus vettiveroides* and ascorbate were observed to be 68.61% and 98.07% individually. The $IC_{50}$ estimations of ethanolic concentrate of *Coleus vettiveroides* and ascorbate were recorded as 270µg/ml and 50µg/ml individual.

**Total flavonoids**

Plants are considered as wellsprings of cancer prevention agents because of vicinity of polyphenols and flavonoids which have wide natural properties. Late studies demonstrate that numerous flavonoids and related polyphenols contribute altogether to the aggregate cell antioxidant movement of numerous plants (Durgas Jr A.J et al., 2006). The aggregate sum of flavonoids substance of ethanolic concentrate of *Coleus vettiveroides* was displayed in Table 3. The ethanolic concentrate of *Coleus vettiveroides* was found to contain high measures of flavonoids.

**CONCLUSION**

The results of the above investigation indicated that ethanolic extract of *Coleus vettiveroides* showed strong antioxidant activity. Therefore, further work should be performed on the isolation and identification of the antioxidant components in *Coleus vettiveroides***.**

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