WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 5.045
Volume 3, Issue 5, 1371-1376. Research Article ISSN 2277 – 7105

IN-VITRO FREE RADICAL SCAVENGING ACTIVITY OF CANTHIUM CORAMANDELIUM EXTRACT

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Article Received on
25 May 2014,

Revised on 20 June 2014,
Accepted on 15 July 2014

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ABSTRACT

Introduction: CanthiumCoramandelium is a shrub widely indicated for dysentery. An antioxidant is molecule that inhibits the oxidation of other molecules. Antioxidants are widely used in dietary supplements and have been investigated for the prevention of diseases such as cancer, coronary heart disease and altitude sickness. In this study we have attempted to evaluate the free radical scavenging activity of CathiumCoramandelium using in-vitro 1, 1-diphenyl-2-picrylhydrazyl (DPPH) assay. **Objective:**The objective of the present study was to evaluate the free radical scavenging activity and antioxidant potential of Canthium Coramandelium. **Material & methods:** DPPH radical scavenging activity was done using the method of Modified method of Bios (1985). The reaction mixture containing 1ml of DPPH solution (1mM in ethanol) with different concentrations of the substance (20, 40, 60, 80, µg/1ml) was shaken and incubated in dark for 20 min at room temperature. The resultant absorbance was recorded at 517nm using spectrophotometer. The percentage inhibition was calculated using the formula Percentage inhibition = $\frac{Abs_{control} - Abs_{sample}}{Abs_{control}} * 100$.

Results: At concentrations of 20, 40, 60, 80 µg/ml percentage of inhibition observed was 10.36±0.18, 31.98±0.54, 68.07±0.19 and 91.02±0.04 respectively. **Discussion & conclusion:** Thus this invitro study suggest that CanthiumCoramandelium possesses antioxidant properties. Prior phytochemical analysis CanthiumCoramandelium shows the presence of

flavonoids, tannins and glycosides. The antioxidant property of CanthiumCoramandelium may be attributed to the presence of flavonoids and tannins. However pharmacokinetic and safety profile of Canthium Coramandelium requires pre-clinical testing prior to its clinical application in human beings.

KEY WORDS: Canthium Coramandelium, Antioxidant, DPPH assay.

INTRODUCTION

A large no of medical plants have been widely used since historic time for the treatment of number of diseases. The medicinal value of these plants lies in the phytochemical constituent that produce a definite physiological action on the body. The most important chemical constituents are alkaloids, tannins, flavonoids and phenolic compounds. Enormous species of plants have been studied for new source of natural anti-oxidant. CanthiumCoromandelicum is a shrub, usually with opposite horizontal thorns a little above the leaf axils. Leaves are ovate, smooth on young shoots. Short, few flowered racemes arise in leaf axils. Flowers are small, yellow with 4 stamens. Tube is short, with 4-5 spreading petals. Fruits are oval, grooved on each side. It's widely distributed in India, Indo-China, China and Malaysia. Flowers in the month of July-August. Prior phytochemical analysis of CanthiumCoramandelicumshows the existence of flavonoids, tannins and glycosides. Canthiumcoromandelicumleaves have been used for the treatment of diarrhoea. CanthiumCoromandelicumis an important medicinal plant, various phytochemical, antimicrobial and wound healing studies have already been done with Canthiumcoromandelicumleaf extract. In this study we have made an effort to evaluate the free radical scavenging activity of Cathiumcoramandelicumusing in-vitro 1, 1-diphenyl-2-picrylhydrazyl (DPPH) assay.

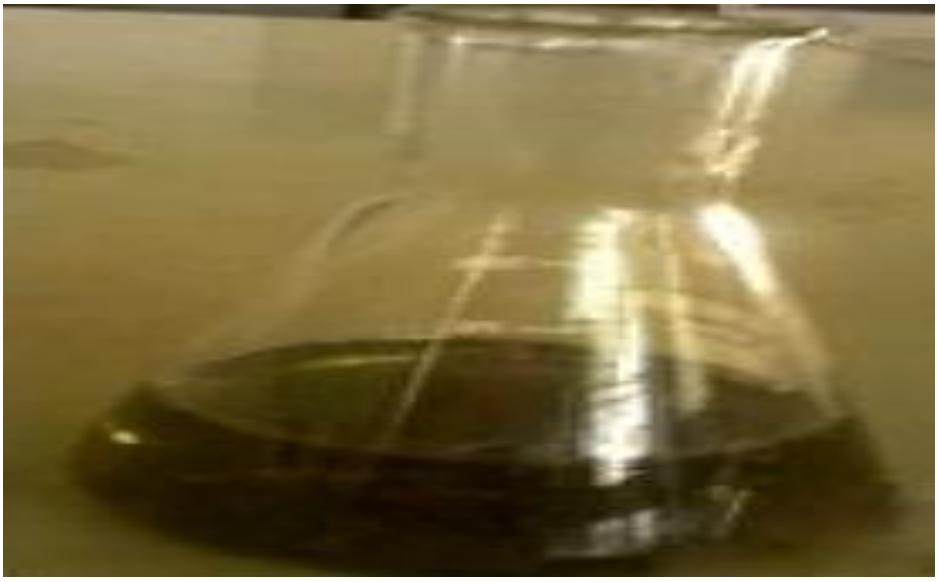
MATERIALS AND METHODS

Plant Material

CanthiumCoramandelicumleaves were was procured from Tamil Nadu Medicinal Plant Farms and Herbal Medicine Corporation Ltd. (TAMPCOL), Chennai, Tamil Nadu, India during Jan 2014.

Preparation of extract

Canthiumcoromendelicumleaves were first washed with distilled water.About 5g of dried leaves were powered and dissolved in 50ml of ethanol and kept overnight.The obtained extract was filtered with whatman no.1 filter paper.The ethanol was then removed under reduced pressure to yield a concentrated extract.

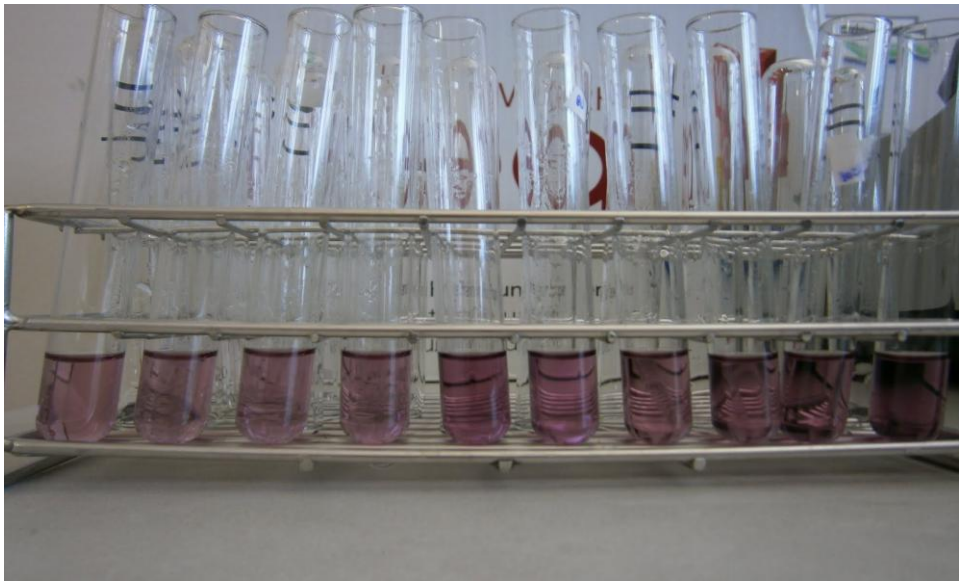


DPPH radical scavenging activity

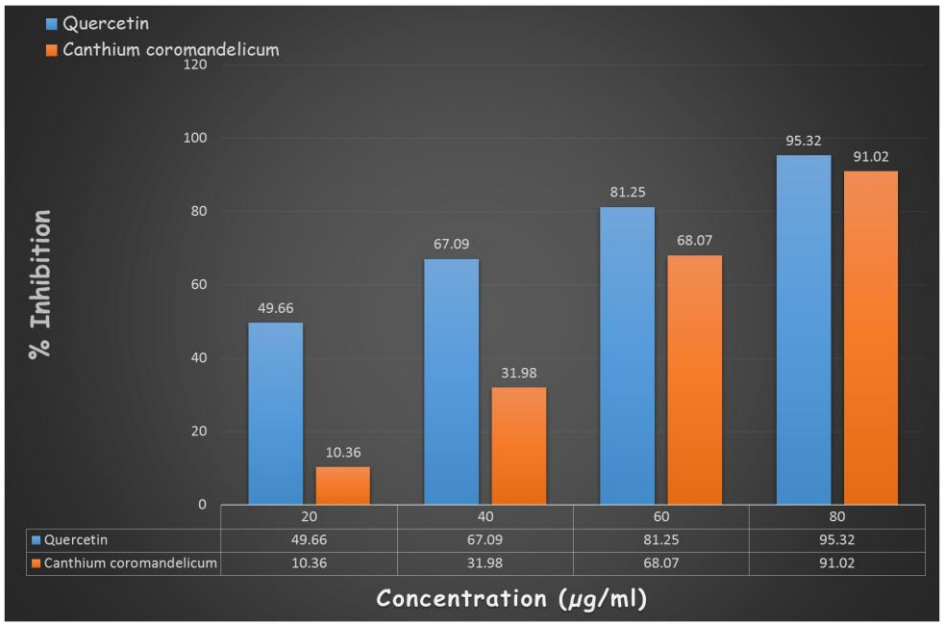
DPPH radical scavenging activity was done using Modified method of Bios (1985). The reaction mixture containing 1ml of DPPH solution (1mM in ethanol) with different concentrations of Canthiumcoromandelicum(20, 40, 60, 80, µg/1ml) is compared with Quercetin (Standard). The mixturewas shaken and incubated in dark for 20 min at room temperature.The resultant absorbance was recorded at 517nm using spectrophotometer.

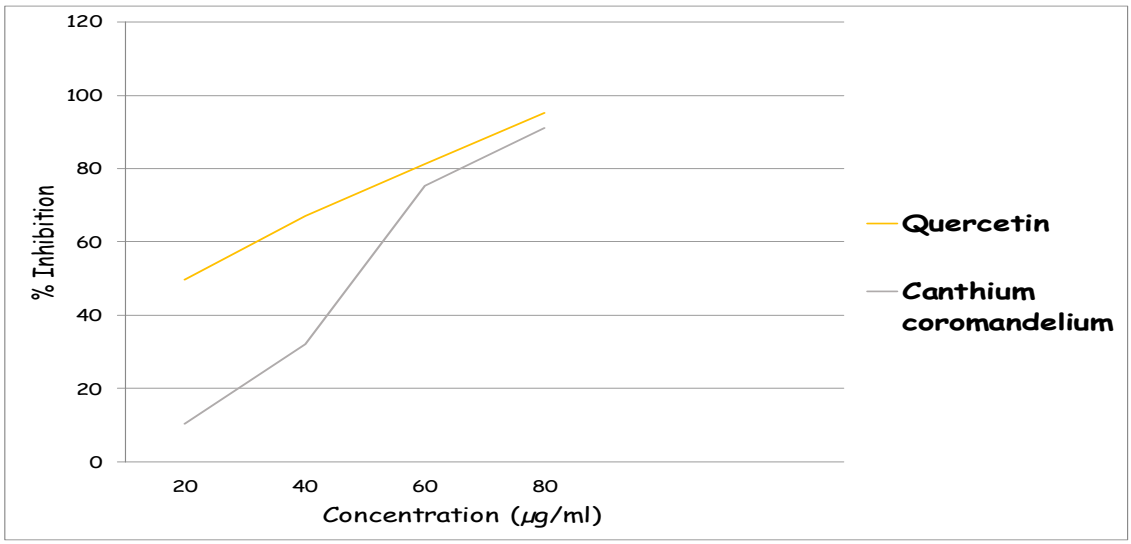
The percentage inhibition was calculated using the formula

$$\text{Percentage inhibition} = \frac{Abs_{control} - Abs_{sample}}{Abs_{control}} * 100$$



Concentration (µg/ml)	% Inhibition Quercetin	% Inhibition Canthiumcoromendelicum
20	49.66 ± 1.12	10.36±0.18
40	67.09 ± 0.16	31.98±0.54
60	81.25 ± 2.47	68.07±0.19
80	95.32 ± 1.07	91.02±0.04





DISCUSSION

Several plants and its derivatives are considered to be a good source of natural free radical scavengers.They have found many medical uses such as against cancer, diabetic mellitus, cardiovascular diseases, aging etc.Detecting natural antioxidant compounds will help to

unfold new candidates for antioxidant therapy. The results of this study clearly shows Canthiumcoromandelicumhas strong antioxidant property under in vitro conditions.Canthium coromandelicumexhibited noteable dose dependent inhibition of DPPH activity.The antioxidant property of Canthiumcoramandelicummay be due to the existence of flavonoids and tannins.

CONCLUSION

From this study we conclude that CanthicumCoramandeliumpossesses antioxidant properties. However pharmacokinetic and safety profile of CanthiumCoramandelicumrequires pre-clinical testing prior to its clinical application in human beings.

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