



Scholars Research Library

Der Pharmacia Lettre, 2012, 4 (5):1515-1517  
(<http://scholarsresearchlibrary.com/archive.html>)



## Comparative *in vitro* antioxidant studies of aqueous solution of formulated poly herbal formulation with marketed preparation

Deepa P<sup>1&2</sup> and N Kannappan<sup>1&3</sup>

<sup>1</sup>Karpagam University, Eachanari, Coimbatore, India.

<sup>2</sup>Devaki Amma Memorial College of Pharmacy, Chelembra, India.

<sup>3</sup>Department of Pharmacy, Annamalai University, Chidambaram, India.

### ABSTRACT

For the formulation the six medicinal plants having antioxidant have been selected based on folklore use. It was formulated in accordance with GMP specification, and it is evaluated for its *in vitro* antioxidant activity. Now a day's plant are used for food but also taken regularly as a preventive measure against certain disease. *In vitro* antioxidant effects of aqueous solution of formulated and marketed preparations were evaluated. The aqueous solution exhibits anti oxidant property when compared to the marketed preparation. Plants have been a rich source of medicines because they produce a lot of bioactive molecules, most of which probably evolved as chemical defense against predation or infection. Several studies indicated that medicinal plants contain substances like peptides, unsaturated long chain fatty acid, aldehydes, alcohols, phenols, and water or ethanol soluble compounds. If antioxidants are unavailable, the free radical production became excessive and results in excessive damage to the body. The antioxidant therapy has gained an utmost importance. Now the current research is directed towards finding naturally occurring antioxidant of plant origin. Here the poly herbal formulation shows good antioxidant property. All the analysis was made by help of U.V. Visible spectrophotometer (Shimadzu). The reducing power of the drug was determined by using ascorbic acid as a standard reducing agent. The present study evaluates the antioxidant property of the new formulation as well as the marketed formulation by DPPH method.

**Key words:** Antioxidant property, poly herbal formulation, DPPH, reducing power.

### INTRODUCTION

The era of grand systems has probably passed but it maybe time to develop a new coherent approach to herb use for a scientific age.

The new formulation gives a positive and consistent pharmacological strategy that can meet the valid changes of medical science. Herbal medicines are of great importance to the health of individuals and communities. Synergy is an important concept in herbal pharmacology. It was based on chemical complexity. It applies if the action of a chemical mixture is greater than the arithmetical sum of the actions of the mixture's components. Oxidative stress is the condition when the body is under the onslaught of free radicals due to which the free radicals encounter cellular molecules such as lipids, proteins, and DNA and they knocked out electrons from the molecules as well and damaged them. Some free radicals arise normally during metabolism. Oxidative stress involved in the development and pathogenesis of a wide variety of diseases ranging from hypertension, diabetes arthritis, and related disorders..Oxidative process is one of the most important route for producing free radicals in food, drug, and even in living system

The purpose of the present study was to investigate the antioxidant activity of the poly herbal formulation and the marketed formulation.

## MATERIALS AND METHODS

The formulation consists of six medicinal herbs possessing antioxidant activity and the selection was based on folklore use.

### Plant materials:

The plant materials for the formulated drug was collected from different parts of Kerala and Tamilnadu, India during month of July-December 2009 and got authenticated by Pradeep Kumar, Herbarium curator, Department of Botany, Calicut University, Kerala.

### Preparation of solution:

#### Aqueous solution:

250 mg of the formulation was treated with 1000 ml distilled water for 24 hrs. It was double filtered by using muslin cloth and Whatman filter paper. It is then concentrated in water bath. The yield was about 1.73%.

### Anti oxidant studies:

#### DPPH radical scavenging activity:

0.2 ml of aqueous solution of formulation samples at different concentration (20 -100 µg/ml) was mixed with 0.8 ml of Tris-HCl buffer (1000Mm, pH 7). One ml DPPH (500 M in ethanol) solution was added to the above mixture. The mixture was shaken vigorously and incubated for 30 minutes in room temperature and the absorbance was measured at 517 nm UV-Visible Spectrophotometer. All the assays are carried out in triplicates.

In this, Ascorbic acid is used as (+) control. The % of inhibition was calculated from the following equation:

$$\text{Inhibition (\%)} = (A_0 - A_1 / A_0) * 100$$

Where A<sub>0</sub> is the absorbance of control.

A<sub>1</sub> is the absorbance of test.

Same procedure was followed for the marketed preparation and it was compared with the formulated one. Blank was prepared without the addition of DPPH.

**Table. 1 Phytochemical constituents of the formulation**

Phytochemical constituents	Aqueous solutions of poly herbal formulation	Aqueous solutions of marketed formulation
Carbohydrate	(+)	(+)
proteins	(+)	(+)
lipids	(+)	(+)
flavonoids	(+)	(-)
saponins	(+)	(-)

Anti oxidant activity of aqueous solution of 517 nm.

**Table.2 Anti oxidant activity of formulations**

Sl.no.	Formulations	IC 50 (µg/ml)
1	Poly herbal formulation	5.9
2	Marketed formulation	8.3

Decreased absorbance of the reaction mixture indicates stronger DPPH radical scavenging activity. Here poly herbal formulation shows powerful antioxidant activity when compared to the marketed formulation.

## RESULTS AND DISCUSSION

For determining the antioxidant property the aqueous solution of both (poly herbal formulation and marketed) was collected and both of them are tested for the presence of carbohydrates, proteins, flavonoids etc. by qualitative phytochemical analysis. Free radical scavenging activity of aqueous solution of both (poly herbal formulation and marketed) was also quantitatively determined using DPPH assay.

### CONCLUSION

Poly herbal formulation exhibited good reducing power by comparing with ascorbic acid reducing power. The marketed product shows greater IC<sub>50</sub> value, i.e. low inhibitory concentration. The results in Table 1 shows there is a decrease in absorbance of DPPH at its absorption maxima of 517 nm, which is proportional to the concentration of free radical scavenger added to DPPH reagent solution. Natural antioxidants of plant origin have greater application and they also find use as nutraceutical.

### Acknowledgement

My sincere thanks to Dr.N.kannappan, Ms. Rupasree for their valuable suggestions and I acknowledge profound gratitude to the Department of Pharmaceutical Analysis, Devaki amma Memorial college of pharmacy for providing the facilities for research work.

### REFERENCES

- [1] D.Mantle, F .Eddeb, & AT Pickering , *Comparison of relative anti oxidant activities of British medicinal plant species in vitro*, *J.Ethanopharmacol*, **2000**, 72:47-51
- [2] H. Kikuzaki, N. Nakatani, *Antioxidant effects of some ginger constituents*, *Journal of Food Science* **1993**; 58(6):1407-1410.
- [3] JB .Harborne, H .Baxter (1993), *Phytochemical Dictionary*, Taylor and Francis Washington DC, p. 1765.
- [4] MA. Iyengar, *Study of Crude Drugs*, 8<sup>th</sup> ed., Manipal Power Press, Manipal, India. **1995** pp. 2.
- [5] J. Kuhnan, *The flavanoids- A class of semi-essential components; their role in human nutrition*. *World Review of Nutrition and Dietetics*, **1976**, 24:117-191.
- [6] RP Rastogi, BN Mehrotra, *Glossary of Indian Medicinal Plants*. National Institute of science communication, New Delhi, India **2002**.
- [7] AA Siddiqui, M. Ali, *Practical Pharmaceutical chemistry*, 1<sup>st</sup> ed., CBS Publishers and Distributors, New Delhi, **1997**, pp. 126-131.
- [8] J . Bruneton, *Pharmacognosy Phyto chemistry Medicinal plants*, France: Lavoisier Publishing Co:265-380, (**1995**).
- [9] O .Akerele, *Summary of WHO Guidelines for the Assessment of Herbal Medicines Herbal Gram*. **1993**, 22: 13-28.
- [10] Anonymous. *The Indian pharmacopoeia*. Govt of India, New Delhi. Ministry of Health and family welfare, **1996**.