www.ijpbs.net

INTERNATIONAL JOURNAL OF PHARMA AND BIO SCIENCES

Internationally indexed journal

Indexed in Chemical Abstract Services (USA), Index coppernicus, Ulrichs Directory of Periodicals, Google scholar, CABI ,DOAJ , PSOAR, EBSCO , Open J gate , Proquest , SCOPUS , EMBASE ,etc.

Rapid and Easy Publishing

The "International Journal of Pharma and Bio Sciences" (IJPBS) is an international journal in English published quarterly. The aim of IJPBS is to publish peer reviewed research and review articles rapidly without delay in the developing field of pharmaceutical and biological sciences

Pharmaceutical Sciences

- Pharmaceutics
- Novel drug delivery system
- Nanotechnology
- Pharmacology
- Pharmacognosy
- Analytical chemistry
- Pharmacy practice
- Pharmacogenomics
- Polymer sciences
- Biomaterial sciences
- Medicinal chemistry
- Natural chemistry
- Biotechnology
- Pharmacoinformatics
- Biopharmaceutics

Biological Sciences

- Biochemistry
- Biotechnology
- Bioinformatics
- Cell biology
- Microbiology
- Molecular biology
- Neurobiology
- Cytology
- Pathology
- Immunobiology

Indexed in Elsevier Bibliographic Database (Scopus and EMBASE)
SCImago Journal Rank 0.129
Impact factor 0.67*

*Instruction to Authors visit **www.ijpbs.net**

For any Queries, visit "contact" of www.ijpbs.net

Int J Pharm Bio Sci 2014 Jan; 5(1): (P) 396 - 400

Research Article **Medicinal Chemistry**

International Journal of Pharma and Bio Sciences **ISSN 0975-6299**

EVALUATION OF ANTIOXIDANT ACTIVITY OF SAPONIN AND TANNIN FRACTIONS ISOLATED FROM THE LEAVES OF *TRIDAX PROCUMBENS*

P. S. PANDE*, V. D. MANE AND M. N. MISHRA

Shankarlal Khandelwal Arts, Science and Commerce College, Akola 444 002 (M.S), India

ABSTRACT

Saponin and tannin fractions have been isolated from the leaves of *tridax procumbens.* The quantitative evaluation of antioxidant activity was elucidated. Both fractions showed moderate to good antioxidant activity assay for DPPH. IC_{50} values of both fractions have also been reported in the study.

KEYWORDS: Saponnin, Tannin, Antioxidant activity and IC_{50}

P. S. PANDE
Shankarlal Khandelwal Arts, Science and Commerce College, Akola 444 002 (M.S), India

INTRODUCTION

Antioxidants are the substances that inhibit the action of free radicals. Free radical and reactive oxygen species (ROS) play important role in many pathological conditions such as cancer, arthritis, cardiovascular diseases and liver diseases hence much attention is paid to it in recent years[1,2,3] . The products from plants have been used in different system of medicines viz. Unani, Ayurveda and Homeopathy. Charak Samhita and Sushrut Samhita include 700 plants as sources of drugs. A study of *Tridax procumbens* with special references to wound healing properties has a wide scope for searching various chemicals ingredients with high therapeutic activity. Some poly hydroxy flavones have been proved to have a high grade of antioxidant activity. Many researchers have published reviews on antioxidant activity of plant origin. *Tridax procumbens* has been extensively documented in the literature for its pharmacological activity. The ethanolic extracts of *tridax procumbens* has been reported to possesses immunomodulatory activity.[4] Leaves of *tridax procumbens* have been documented to be useful for dysentery, diarrhoea and preventing hair fall[5,6,7]. The whole plant of *tridax procumbens* has also shown good antimicrobial activity.[8] The extract of flower of *tridax procumbens* have been reported to exhibit some anti cancer activity as well.[9] Hence it is worth extracting the phytoconstiuents from *tridax procumbenes* and to study their antioxidant activity. In the present study saponin and tannin fractions have been extracted from the leaves of *tridax procumbenes* and their antioxidant activity has been determined quantitatively.

MATERIALS AND METHODS

Sample leaves of *tridax procumbens* were obtained from local market of Melghat region of Maharastra and authenticated from the Department of Botany, Shri Shivaji College, Akola

Extraction of saponin10 g of coarse powered of dried leaves was added to 100 ml 20% ethanol and heated in water bath for 4 hours with continuous stirring at about 55^0 C then it was filtrated and re extracted the residue over water bath at 90^0C and transferred to 250 ml separating funnel and added 20ml diethyl ether and shacked vigorously. Aqueous layer was recovered and discarded the diethyl ether layer. 60 ml of n-butanol was added and combined extract washed twice with 10 ml of 5% aqueous sodium chloride and evaporated in water bath up to dryness and completely dried in oven. The residue so obtained was collected and preserved for further investigation.

Extraction of tannin

10 g of coarse powered of dried leaves was taken in beaker containing approximately 100 ml distilled water and boiled for 30 min, filtered and the filtrate was centrifuged at 2000 rpm and supernatant was collected. Then sample was dried, collected and preserved for further investigation.

Study of antioxidant activity by DPPH

The antioxidant activity of the isolated saponin and tannin fractions was assessed on the basis of the radical scavenging effect of the stable 1, 1-diphenyl-2-picrylhydrazyl
(DPPH). The diluted working solutions of the test extracts were prepared in methanol.
0.002% of DPPH was prepared in methanol and 1 ml of this solution was mixed with 1 ml of sample solution. These solution mixtures were kept in dark for 30 min and optical density was measured at 517 nm using UV visible spectrophotometer. Methanol (1 ml)
with DPPH solution (0.002%, 1 ml) was used as blank.The optical density was recorded and % inhibition was calculated using the formula given below

$$\text{Percent (\%) inhibition of DPPH (\%AA)} = \frac{A - B}{A} \times 100$$

Where A = optical density of the blank and B = optical density of the sample.

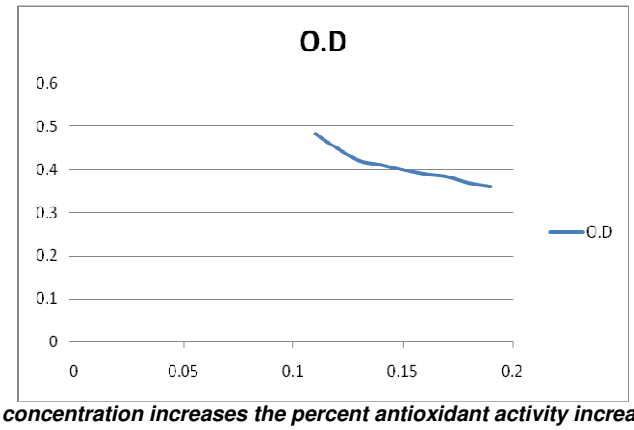
RESULTS AND DISCUSSION

The stock solution 1mg/ml of isolated saponin fraction was prepared using water as solvent. The required dilutions 0.11mg/ml to 0.19 mg/ml were prepared by appropriate dilutions. The optical density and percent antioxidant activity was calculated and reported table 1

Table 1
Optical density and percent antioxidant activity for saponin fraction O.D. of blank DPPH = 0.565

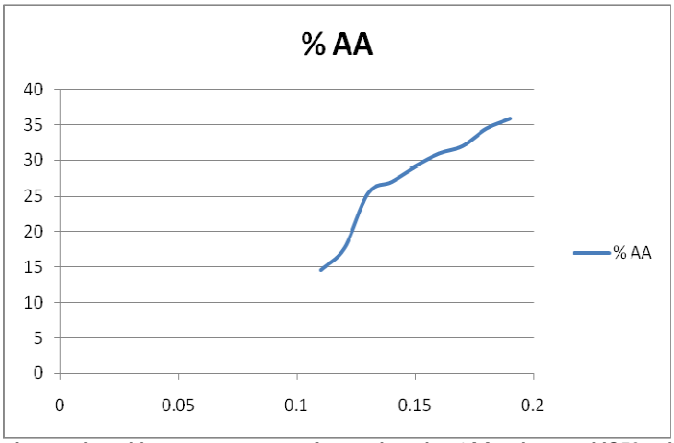
Conc. Mg/ml	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
O.D of sample	0.483	0.449	0.421	0.412	0.400	0.390	0.384	0.370	0.362
% AA	14.51	17.68	25.48	27.07	29.20	30.97	32.03	34.51	35.92

Decrease in O.D. of sample with increase in concentration of saponin fraction



As concentration increases the percent antioxidant activity increases.

Increase in percent antioxidant activity with increase in concentration of saponin

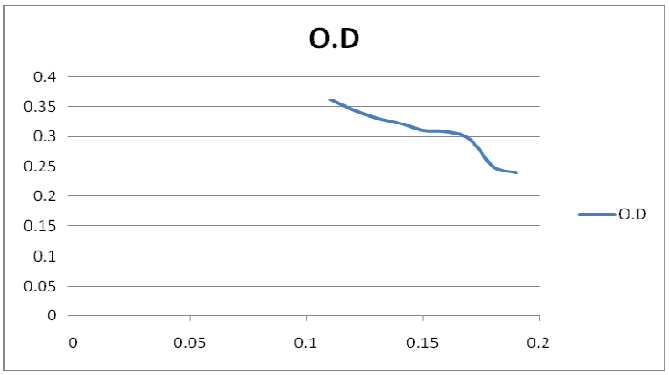


A graph was plotted between concentration against the %AA values and IC50 vale was calculated from graph. The IC50 vale for saponin component was found to be = 0.13mg/ml

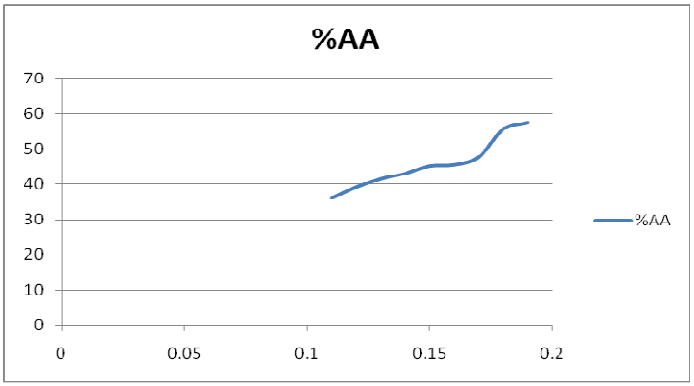
Table 2
Optical density and percent antioxidant activity for tannin fraction O.D. of blank DPPH = 0.565

Conc.Mg/ml	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
O.D of sample	0.361	0.344	0.331	0.322	0.310	0.308	0.296	0.251	0.240
%AA	36.10	39.11	41.41	43.00	45.13	45.48	47.61	55.57	57.52

Decrease in O.D. of mixture with increase in concentration of tannin



Increase in percent antioxidant activity with increase in concentration of tannin



IC50 vale for tannin =0.165mg/ml

CONCLUSION

Remarkable decrease in the O.D. values of sample for both the isolated fractions was observed indicating antioxidant activity of the fractions. Both the fraction viz saponin and tannin extracted from the leaves of *tridax procumbens* showed good to moderate antioxidant activity which is evident from the graph. The IC_{50} values for saponin and tannin fractions were found to be 0.13mg/ml and 0.165mg/ml respectively.

ACKNOWLEDGEMENT

Authors are thankful to the Management and Principal of Shankarlal Khandelwal College, Akola for providing necessary facilities. Authors are also thankful to University Grants Commission for providing the financial support under major research project. Thanks are also due to Dr. S. P. Rothe, Department of Botany, Shri Shivaji College, Akola for identification of plant material.

REFERENCES

1. Fejes S., Blazovics A., Lemberkovics E., Petri G. and Kery A., *J Ethnopharmacol* (2000); 69: 259-265.
2. Chopda, M.Z.: Wound healing agents of plant origin, A Thesis, North Maharashatra University, Jalgaon, M.S. India.(2009).
3. Namrata V. Nemade, Manojkumar Z. Chopda and Raghunath T. Mahajan *Academic Scienses, International J of Pharmacy and Pharmaceutical Science* Vol 3(4),(2011)
4. M.K. Oladunmoye. Immunomodulatory *International journal of tropical medicine,* (2006), 1 (4), 152-155.
5. V. K. Saxena and S. Albert. *J. Chem. Sci.*,(2005), 117(3), 263–266.
6. V. Rathi, J. C. Rathi, S. Tamizharasia and A. K. Pathak.. *Pharmacognosy Review*, (2008), 2(3), 185- 186.
7. Mohammed Ali, Earla Ravinder, Ramidi Ramachandram, (2001), *Fitoterapia*, 72, 313-315.
8. R.B. Mahato and R.P. Chaudhary. *Scientific World*, (2005), 3(3), 26-31.
9. Vishnu Priya P , Radhika K , Siva Kumar R , Sri Ramchandra M, Prameela Devi Y and A.Srinivas Rao , *Pharmanest - An International Journal of Advances In Pharmaceutical Sciences* Vol. 2 (1) January - February (2011)