



# ANTIOXIDANT STUDY OF DIFFERENT EXTRACTS OF CATHARANTHUS ROSEUS PLANT

M. O. Malpani, Mohd Shoeb and Sohail Khan

Department of chemistry, Shankarlal Khandelwal Arts, Science and Commerce College, Akola, 444002. (M. S.) India.

E-mail- [momalpani@gmail.com](mailto:momalpani@gmail.com)

## Abstract:

Man's existence on this earth has been made possible only because of the vital role played by the plant kingdom in sustaining his life. Medicinal plants play an important role in the treatment of various diseases. *Catharanthus roseus* is a medicinally potent plant which is used in relieving muscle pain, stomach ache, depression of central nervous system and to heal wounds. In the present study we have evaluate the antioxidant activity using DPPH assay method of water and alcoholic extracts of *Catharanthus roseus*. These extracts shows good to moderate antioxidant activity.

**Key words:** *Catharanthus roseus*, DPPH, water and alcoholic extracts.

## INTRODUCTION<sup>1-6</sup>

*Catharanthus roseus*, commonly known as bright eyes is a species of flowering plant in the family Apocynaceae. It is grown elsewhere as an ornamental and medicinal plant. The phytochemical analysis of the *C. roseus* shows the presence of alkaloids, terpenoids, steroids, flavonoids, and other plant secondary metabolites. In traditional medicine, the periwinkle has been used for relieving muscle pain, depression of the central nervous system, also used for applying to wasp stings and to heal wounds. Its application ranges widely from the prevention of diabetes to treatment of stomach ache. In the present study we have evaluate the antioxidant activity using DPPH assay method of water and alcoholic extracts of *Catharanthus roseus*. These extracts shows good to moderate antioxidant activity.

## METERLALS AND METHOD

The Leaves of *Catharanthus roseus* plants were collected and shade dried at room temperature and ground in a manual mill to get coarse powder. The coarse powdered materials of leaves were kept in the airtight polythene bag and stored in dry place. These powders were extracted with water and ethanol by using soxhlet apparatus. These aqueous and alcoholic extracts were concentrated at 40°C using rotary evaporator. Finally it was stored in air tight bottles at 4°C for further study.

## STUDY OF ANTIOXIDANT ACTIVITY BY DPPH

The antioxidant activity of water and ethanol extracts of Leaves of *Catharanthus roseus* plants were 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 plants extracts were prepared in water and ethanol. 0.004% of DPPH was prepared in ethyl alcohol and 3 ml of this solution was mixed with 3ml of sample solutions. These solution mixtures were kept in dark for 30 min and optical density was measured at 517 nm using UV Visible spectrophotometer. Alcohol (3 ml) with DPPH solution (0.004%, 3ml) was used as blank. The optical density was recorded and % inhibition was calculated the formula given below

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

Where, A = Optical density of the blank and

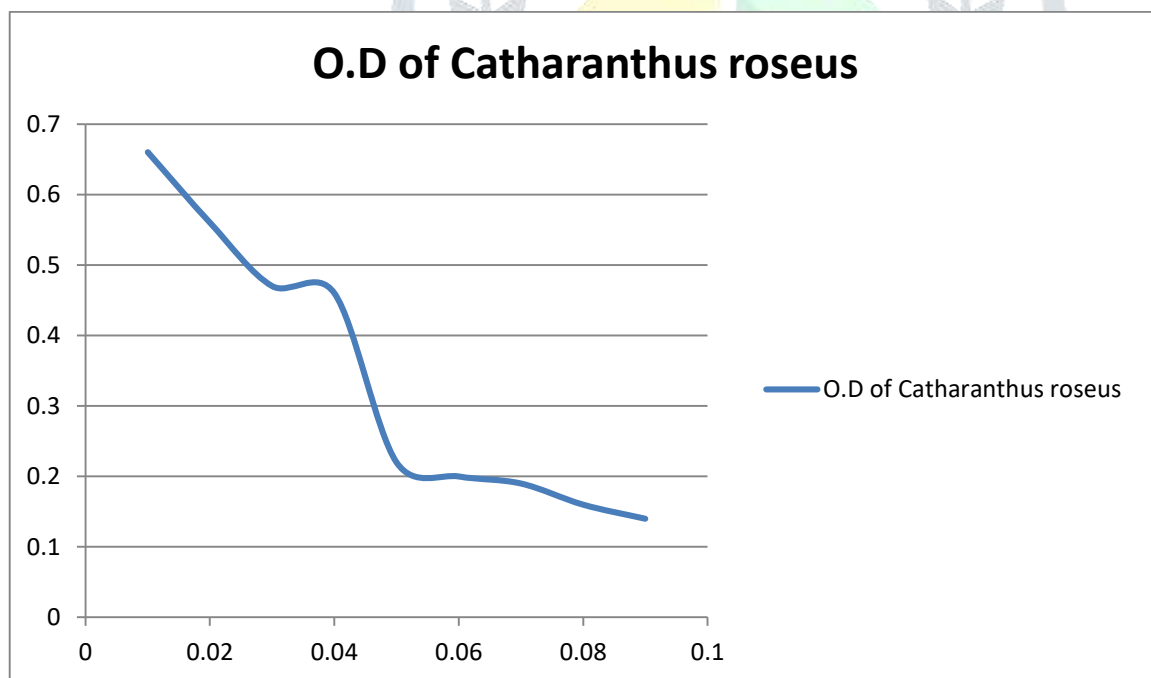
B = Optical density of the sample.

## RESULTS AND DISCUSSION

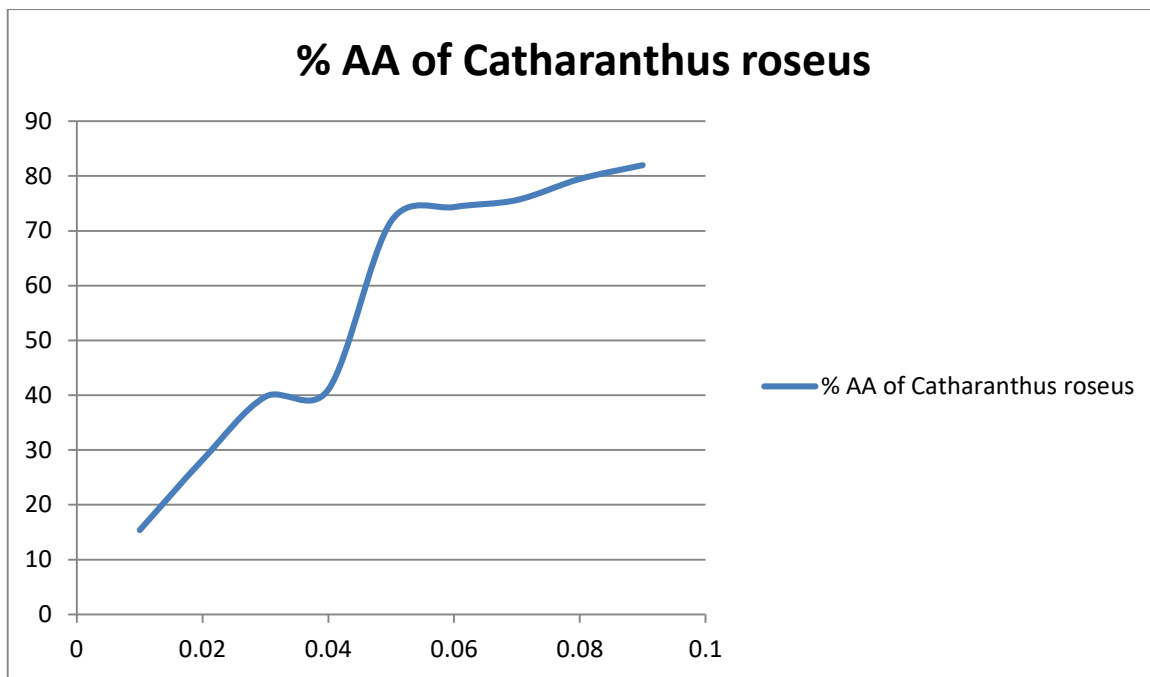
The stock solution 1 mg/ml of ethanol and water were prepared. The required dilutions 0.1 mg/ml to 0.9 mg /ml were prepared by appropriate dilutions. The optical density and percent antioxidant activity were calculated.

**Table 1:** Optical and density and percent antioxidant activity for *Catharanthus roseus* leaves ethanol extract. (O.D of blank DPPH= 0.78)

Conc. mg/ml	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
O.D. of <i>C. roseus</i>	0.66 B1	0.56 B2	0.47 B3	0.46 B4	0.22 B5	0.20 B6	0.19 B7	0.16 B8	0.14 B9
% AA of <i>C. roseus</i>	15.38	28.20	39.74	41.02	71.79	74.35	75.64	79.48	82.05



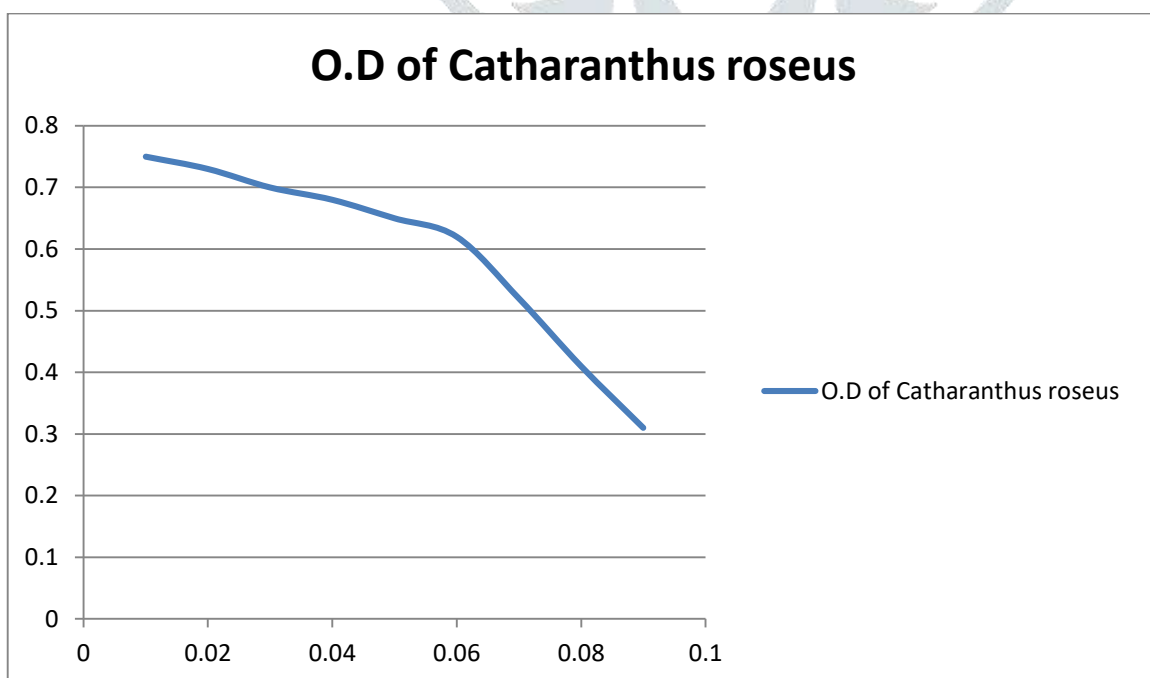
**Figure 1:** Decrease in optical density of sample with increase in concentration of ethanol extracts of *Catharanthus roseus*



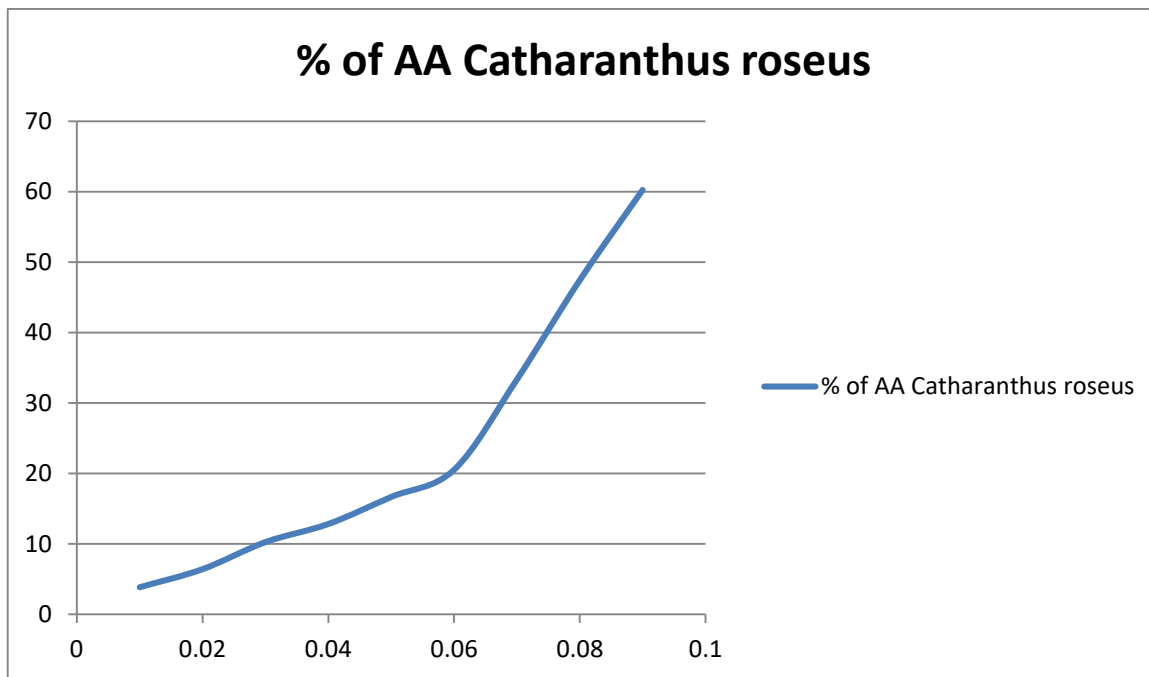
**Fig. 2 Increase in % antioxidant activity with increase in concentration of ethanol extract of *Catharanthus roseus***

**Table 2:** Optical and density and percent antioxidant activity for *Catharanthus roseus* leaves water extract. (O.D of blank DPPH= 0.78)

Conc. mg/ml	Conc of Mg/Ml	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
O.D. of <i>C. roseus</i>	O.D	0.75 B1	0.73 B2	0.70 B3	0.68 B4	0.65 B5	0.62 B6	0.52 B7	0.41 B8	0.31 B9
% AA of <i>C. roseus</i>	% f AA	3.84	6.41	10.25	12.82	16.66	20.51	33.33	47.43	60.25



**Figure 3:** Decrease in optical density of sample with increase in concentration of water extracts of *Catharanthus roseus*



**Fig. 4 Increase in % antioxidant activity with increase in concentration of water extract of *Catharanthus roseus***

## CONCLUSION

The results obtained for the antioxidant assay by DPPH for ethanol extracts of Leaves *Catharanthus roseus* plants are reported. Remarkable decrease in O.D value of test plant sample were observed from the graph, showed antioxidant activity. The IC<sub>50</sub> value for ethanol and aqueous extracts of Leaves of *Catharanthus roseus* plants were found to be 48.72 mg/ml, 32.05 mg/ml respectively.

## ACKNOWLEDGMENT

Authors are thankful to the Management, Principal of Shankarlal Khandelwal College, Akola for providing necessary facilities and Dr. P. S. Pande, Head, Department of Chemistry for their valuable guidance.

## Reference :

- 1) Patil, S.P, Laddha. K.S, Extraction Efficiency of from *Catharanthus roseus* Leaves Using Different Techniques and its Quantitative Determination by HPLC, International Journal of Health Science & Research. 2018, ISSN: 2249-9571.
- 2) Rani A, Sharma A. The genus Vitex: a review. Pharmacogn Rev 2013; 7: 188-198.
- 3) Singh, V. K., Govil, J. N., Hashimi S. and Singh G. 2003. Recent progress in medicinal plants vol 7. Ethnomedicine and pharmacognosy, Reprint ed. Houston USA: Studium press LLC.
- 4) Narayana, A. K. And Kolammal M., 1966. Pharmacognosy of Ayurvedic drugs kerala Series 1 Number 9, Trivandrum: Department of Pharmacognosy, University of kerala;. P.18-22
- 5) Sharma, P. V., 2014. Charakasamhitha Vol 1, 25th chapter Yajjapurushheeyam. Revised ed. Varanasi: Chaukhambha Orientalia; P.168
- 6) Sharma, R. K. And Arora, R. 2006. Herbal drugs-A twenty first century perspective, first ed., Jaypee Brothers Medical Publishers (P) Ltd., New Delhi.