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COMPARATIVE ANTIOXIDANT STUDY OF DIFFERENT EXTRACTS OF *VITEX NEGUNDO* PLANT.

M. O. Malpani, G. M. Bais and V. D. Mane

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

E-mail- momalpani@gmail.com

Abstract:

Phytochemicals are the new source of natural antioxidant which are use in food and pharmaceutical preparation. *Vitex negundo* plant is a medicinally important plant which is used in muscle ache, joint pain, oedema and skin diseases. In the present study we have evaluate the antioxidant activity using DPPH assay method of water and alcoholic extract of *Vitex negundo* plant. These extracts show good to moderate antioxidant activity.

Key words: *Vitex negundo*, antioxidant activity, DPPH, extracts.

INTRODUCTION[1-9]:

Medicinal plants are considered as a rich resources of ingredients which can be used in drug development either pharmacopoeial, non pharmacopoeial or synthetic drugs. A part from that, these plants play a critical role in the development of human cultures around the whole world. Some herbs like aloe, sandalwood, turmeric, garlic and peppermint are commonly used as antiseptic and are very high in their medicinal values. *Vitex negundo* plant is a medicinally important plant which is used in muscle ache, joint pain, oedema and skin diseases. Oil of *Vitex negundo* plant is applied to sinus and knee ache. Extract also shown anticancer activity against tumour cells. Oral use of leaves is helpful in releasing fever. The dried leaves of *Vitex negundo* use in hukka which are beneficial in cold and headaches. Oral use of powdered seeds helpful in regularising the menstrual cycle. The Ayurveda and Unani pharmacopoeia of India has documented the use of leaf, seed and the root to treat excessive vaginal discharge, oedema, skin diseases, pruritus and fever. In the present study we have evaluate the antioxidant activity using DPPH assay method of water and alcoholic extract of *Vitex negundo* plant. These extracts show good to moderate antioxidant activity.

MATERIALS AND METHOD:

The Leaves of *Vitex negundo* 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 40^0C using rotary evaporator. Finally it was stored in air tight bottles at 4^0C for further study.

STUDY OF ANTIOXIDANT ACTIVITY BY DPPH

The antioxidant activity of water and ethanol extracts of Leaves of *Vitex negundo* 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 1mg/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 were calculated.

Table 1: Optical density and percent antioxidant activity for *Vitex negundo* leaves ethanolic 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	0.75	0.71	0.69	0.66	0.62	0.57	0.55	0.54	0.44
% AA	3.84	8.97	11.53	15.38	20.51	26.9	29.4	30.76	43.76

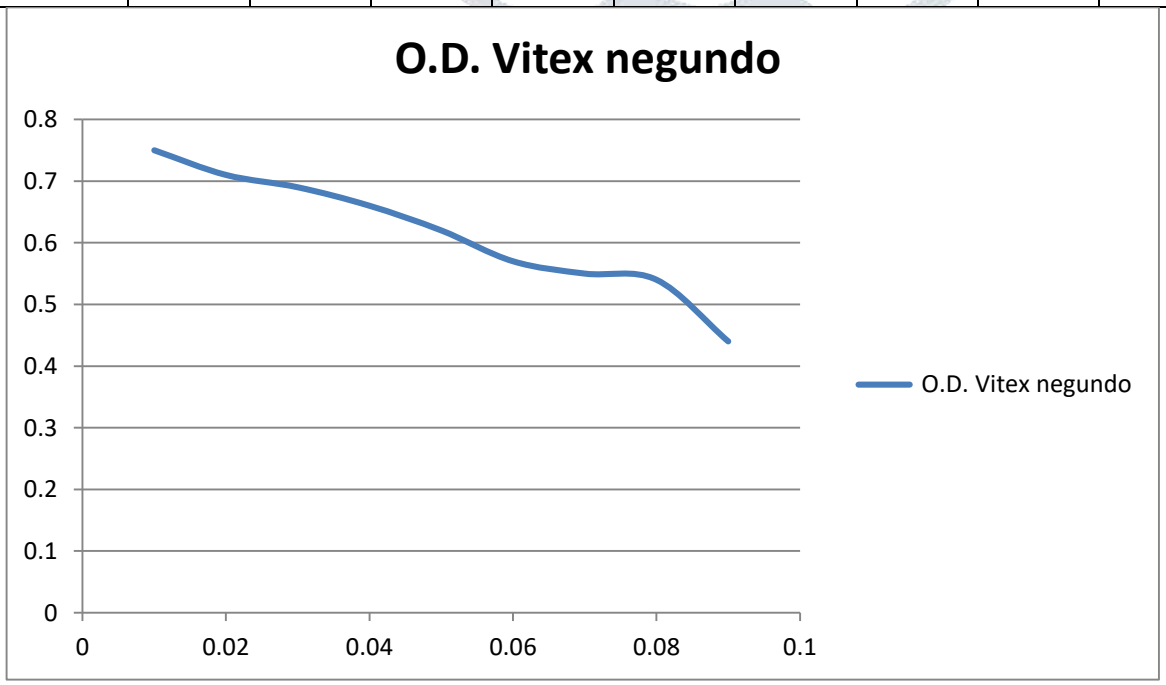

Figure 1: Decrease in optical density of sample with increase in concentration of ethanol extracts of *V.negundo*

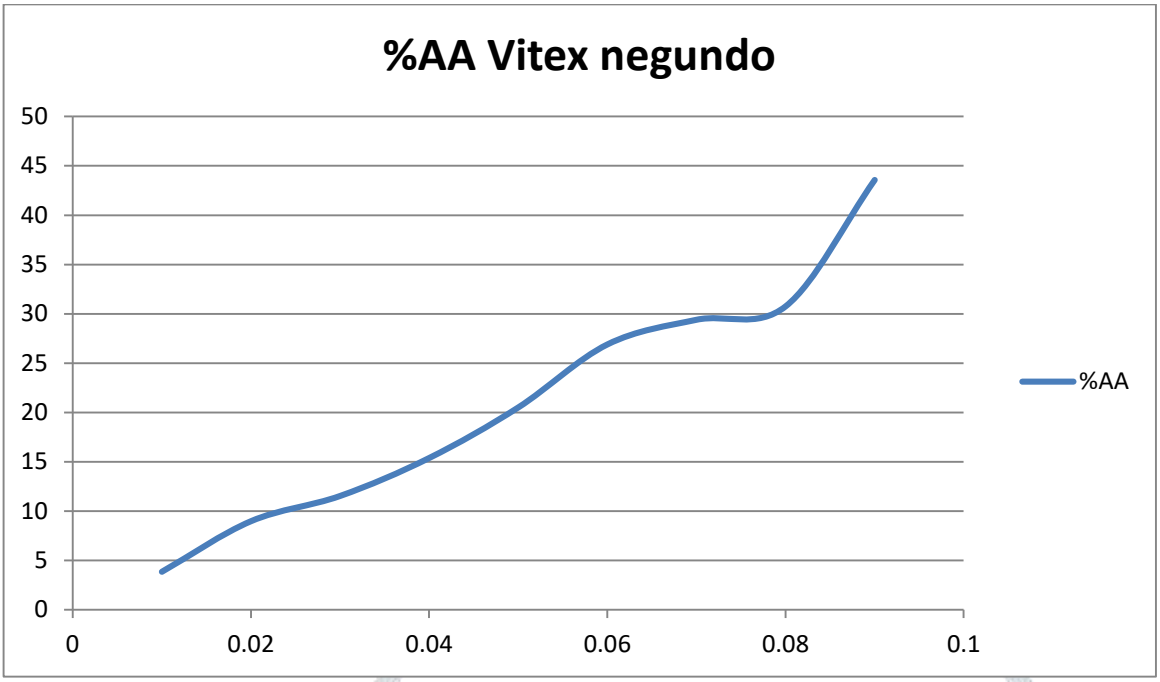

Fig. 2 Increase in % antioxidant activity with increase in concentration of ethanolic extract of *Vitex negundo*

Table No. 2: O.D and antioxidant activity of water extract of *Vitex negundo* leaves. (O.D of Blank DPPH=0.78)

Conc mg/ml	0.01	0.02	0.03	0.04	0.05	0.069	0.07	0.08	0.09
O.D	0.35	0.32	0.28	0.25	0.22	0.20	0.18	0.17	0.12
% AA	55.12	58.97	64.10	67.94	71.79	74.35	76.92	78.20	84.61

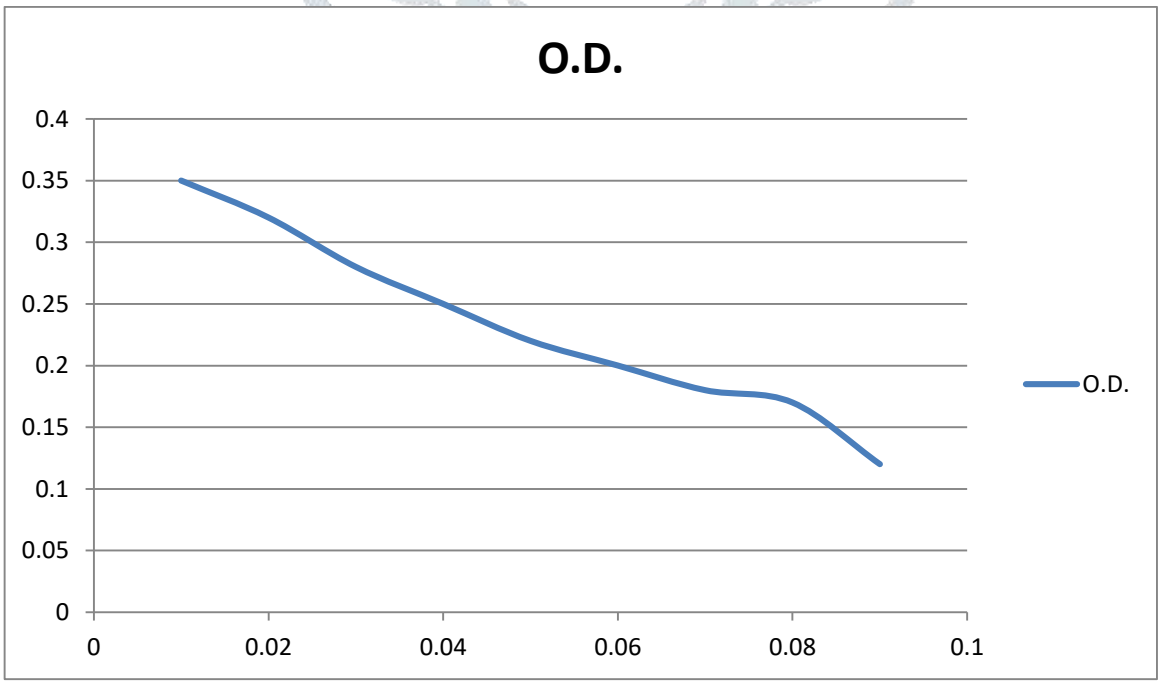

Fig No. 3 Decrease in optical density of sample with increase in concentration of water extract of *V.negundo*.

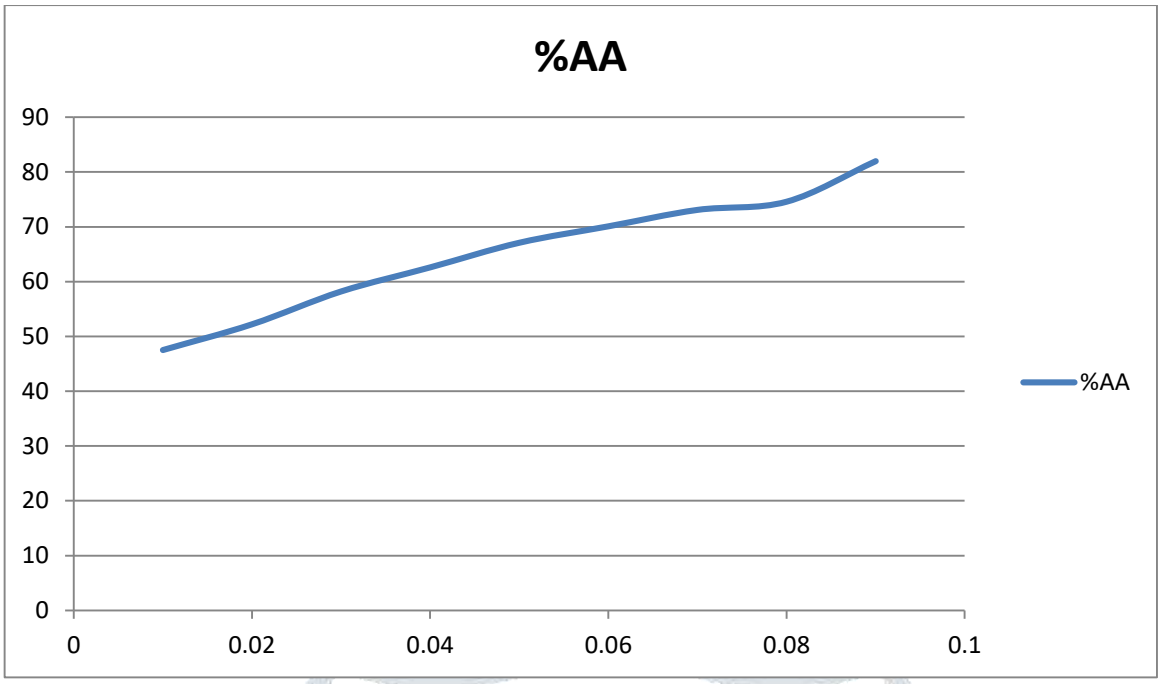

Fig. 4: Increase in percent antioxidant activity with increase in concentration of *V.negundo.*

CONCLUSION

The results obtained for the antioxidant assay by DPPH for ethanol extracts and water extracts of Leaves of *Vitex negundo* plants were reported. Remarkable decrease in O.D value of test plant samples were observed from the graph, showed good antioxidant activity. The IC50 value for ethanol and aqueous extracts of Leaves of *Vitex negundo* plants were found to be 23.8 mg/ml, 69.87 mg/ml respectively.

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