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# ANTIOXIDANT STUDY OF AQUEOUS EXTRACT OF *ASHWAGANDHA* LEAF AND *HIBISCUS* FLOWERS.

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**ABSTRACT :**

*Ashwagandha* and *Hibiscus* flowers is an important medicinal species found in India. The present study was aimed to evaluate the antioxidant activity of water extract of *Ashwagandha* leaves and *Hibiscus* flower using 1.1-diphenly- 2 picrylhydrazyl radical (DPPH) assay method. These extracts shows good to moderate antioxidant activity.

**KEYWORDS :**

Antioxidant, free radical, *Ashwagandha* leaves and *Hibiscus* flowers.

**INTRODUCTION :**

Medicinal plants are called as Medicinal herbs. Now a days Medicinal plants are used to cure various diseases as they don't have any side effects. *Ashwagandha* and *Hibiscus* are the Medicinal plants used to cure various diseases. *Ashwagandha* plant is commonly used to release stress , for the preparation of herbal tea. It is also used to reduce swelling, low blood pressure. It helps to improve sleep and to boost the immune system. Hibiscus flowers used to prevent hair loss, liver disorder and constipation. It is also used as anti-inflammatory and to improve the blood circulation. The present study was aimed to evaluate the antioxidant activity of water extract of *Ashwagandha* leaves and *Hibiscus* flower using 1.1-diphenly- 2 picrylhydrazyl radical (DPPH) assay method. These extracts shows good to moderate antioxidant activity.

**MATERIALS AND METHOD :**

The leaves of *Ashwagandha* and *Hibiscus* flowers were collected and shade dried at room temperature and ground in a manual mill to get coarses powder. The coarses powdered materials of leaves and flowers were kept in the air tight polythene bag and stored in dry place. These powders were extracted with water by using

soxhlet apparatus. These aqueous extract were concentrated at $40^0$ C using rotary evaporator. Finally it was stored in air tight bottles at $4^0$ C for further study.

**STUDY OF ANTIOXIDANT ACTIVITY BY DPPH :**

The Antioxidant activity of water extract of *Ashwagandha* leaves and *Hibiscus* flowers were accessed on the basis of radical scavenging effect of the stable 1,1-diphenyl-2-picrylhydrazyl (DPPH). The diluted working solution of the test plants extracts were prepared in water. 0.004 % of DPPH was prepared in ethyl alcohol and 3 ml of this solution was mixed with 3 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. Alcohol (3 ml) with DPPH solution (0.004 %,3 ml) was used as blank. The optical density was recorded and percentage inhibition was calculated the formula given below.

Percentage (%) Inhibition of DPPH (%AA)=A-B/A X 100

Where, A = Optical density of the blank and

B = Optical density of the sample.

**RESULTS AND DISCUSSION :**

The stock solution 1mg/ml of water was prepared dilution 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 *Ashwagandha* leaves water extract . O.D of blank DPPH = 0.78

$IC_{50}$ = 34.85 mg/ml

| Conc mg/ml | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
|---|---|---|---|---|---|---|---|---|---|
| O.D | 0.77 | 0.75 | 0.73 | 0.63 | 0.58 | 0.50 | 0.35 | 0.24 | 0.23 |
| % AA | 1.2 | 3.8 | 6.4 | 19.2 | 25.6 | 35.8 | 55.1 | 69.2 | 70.5 |

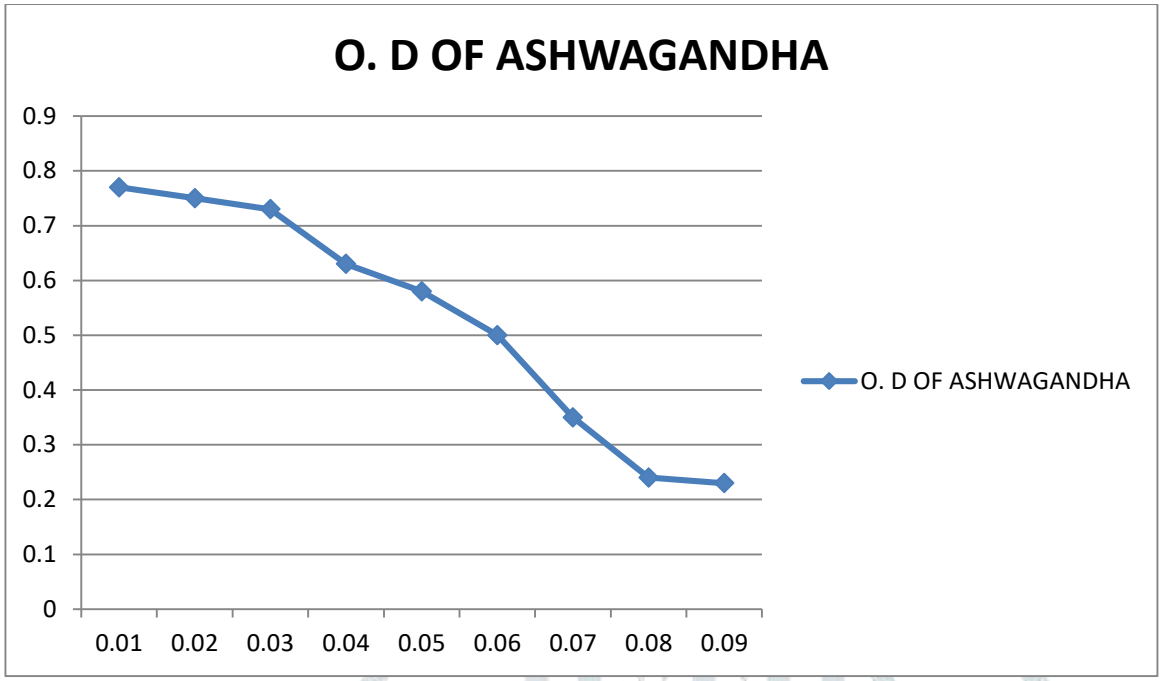


Fig No. 1 Decrease in optical density of sample with increase in concentration of water extract of *Ashwagandha*.

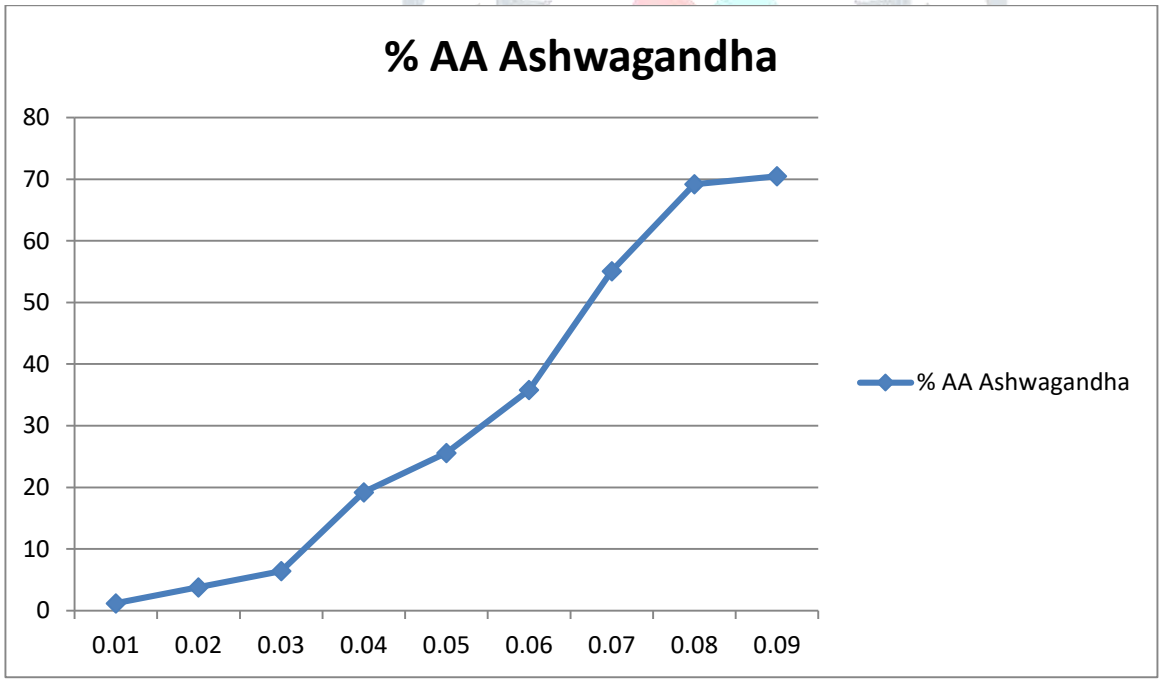


Fig No. 2 Increase in percent antioxidant activity with increase in concentration of *Ashwagandha*.

Table 2 : Optical density and percent antioxidant activity for *Hibiscus* flower water extract . O.D of blank DPPH = 0.80

$IC_{50}$ = 45.62 mg/ml

| Conc mg/ml | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
|---|---|---|---|---|---|---|---|---|---|
| O.D of Hibiscus | 0.67 | 0.60 | 0.54 | 0.43 | 0.40 | 0.37 | 0.36 | 0.22 | 0.20 |
| %AA of Hibiscuc | 16.25 | 25 | 32.5 | 46 | 50 | 53 | 55 | 72 | 75 |

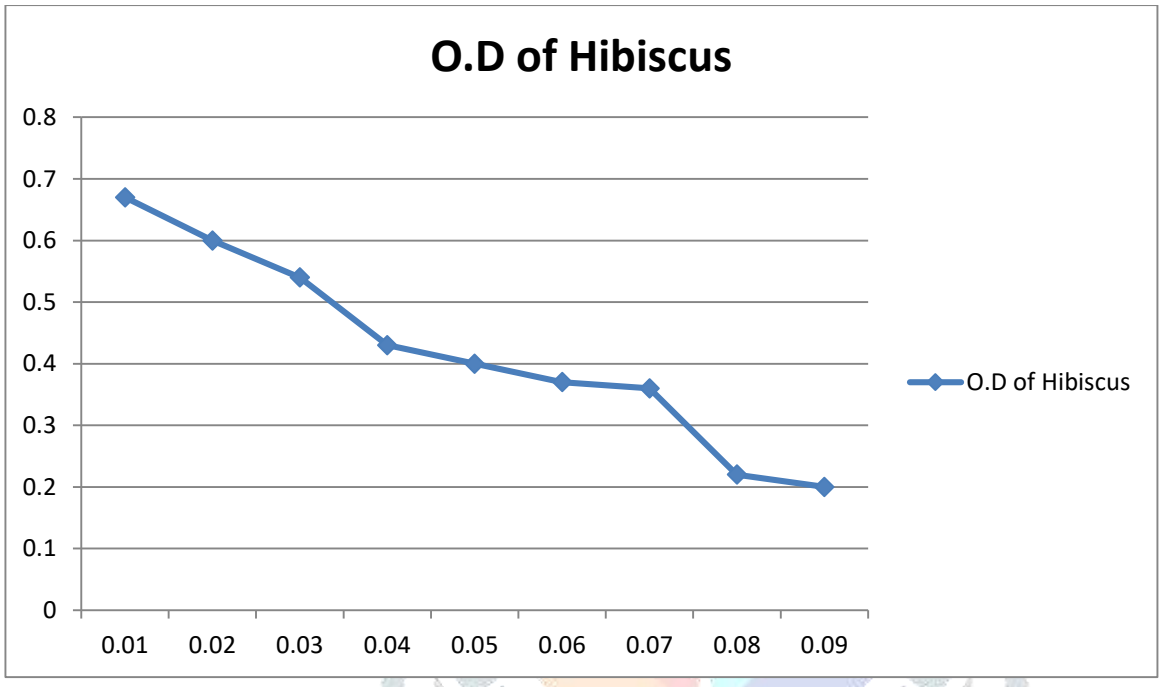


Fig No. 3 Decrease in optical density of sample with increase in concentration of water extract of *Hibiscus* flowers.

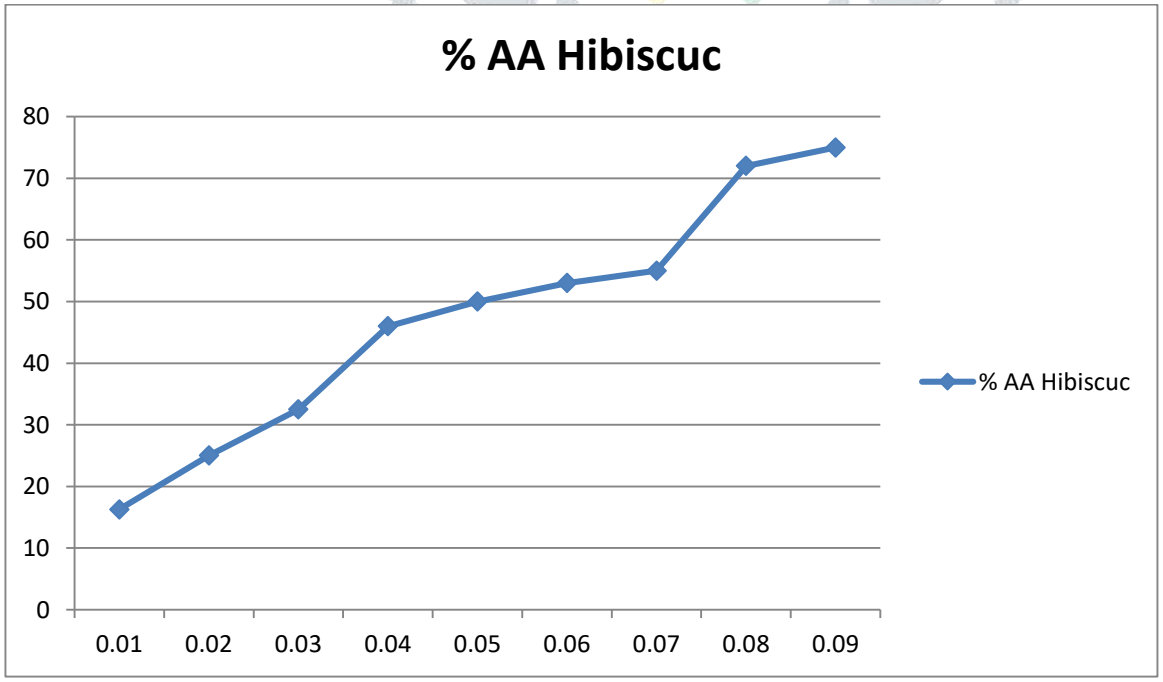


Fig No. 4 Increase in percent antioxidant activity with increase in concentration of Hibiscus flower.

Calculation of $IC_{50}$ for Hibiscuc flowers water extract.

## CONCLUSION :

The results obtained for the antioxidant assay by DPPH for water extracts of Leaves of *Ashvagandha* leaves and *Hibiscus* flower were reported. Remarkable decrease in O.D value of test plant samples were observed from the graph, showed good antioxidant activity. $IC_{50}$ values for the aqueous extract of Ashwagandha was found to be 34.85 mg/ml and for aqueous extract of Hibiscus flowers was found to be 45.62 mg/ml respectively.

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