



# EXTRACTION OF PHYTOCHEMICAL FROM ELEPHANT FOOT YAM AND STUDY OF THEIR ANTI-OXIDANT ACTIVITY.

**Pranali P. Ahir, Rashmi Ingle.**

1. Department of Chemistry, Shankarlal Khandelwal College Akola 444002(M.S), India.
2. Department of Microbiology, Shankarlal Khandelwal College Akola 444002(M.S), India.  
Email: pranaliahir2306@gmail.com

## ABSTRACT:

Amorphophallus paeoniifolius known as Elephant foot yam is basically a crop of south East Asian origin. In India, it is commonly known as "Suran" or "Jimmikand". The present study was aimed to evaluate the phytochemical constituents and antioxidant activity of tuber Amorphophallus paeoniifolius. Antioxidant activity was carried out using 1,1-diphenyl 2-picrylhydrazyl radical (DPPH) assay method.

## 1. INTRODUCTION:-

Herbs have been used by people for longer than we have been keeping written record. Originally, they were found in the wild, by the gatherers and used for a lot of different things. They were used to flavor food, as a source of nutrition, as medicines. Amorphophallus paeoniifolius known as Elephant foot yam is basically a crop of south East Asian origin. In India, it is commonly known as "Suran" or "Jimmikand". It grows in wild form in Philippines, Malaysia, Indonesia and other Southeast Asian countries. This tuber is consumed by many people as a food and widely used in many Ayurvedic preparations.

## 2. MATERIALS AND METHODS

The tuber elephant foot yam were shade dried at room temperature and ground in manual mill to get coarse powder. It was dried, crushed and stored in air tight bottle for further study.

## 3. CHEMICALS:

All the chemicals used in the study were obtained commercially and of analytical grade.

## 4. PHYTOCHEMICAL SCREENING:

The chemical tests were performed for testing different chemical groups present in ethanolic extract of tuber elephant foot yam.

## Phytochemical analysis test of ELEPHANT FOOT YAM:

Sr.no.	Phyto-constituents	Ethanol
1	Carbohydrates	+
2	Reducing sugar	+
3	Hexose sugar 1) Glucose 2) Fructose	+
4	Steroids/Terpenoids	+
5	Protein	+
6	Alkaloids	+
7	Amino acids	+
8	Flavonoids	+
9	Tannins	-

10	Coumarin Glycosides	+
11	Anthraquinone Glycosides	+
12	Saponins	+

## 5.MATERIAL AND METHOD

The tuber elephant foot yam were shade dried at room temperature and ground in manual mill to get coarse powder. The coarse powder materials of tuber were kept in polythene bag and stored in dry place.this powder were extracted with ethanol by using Soxhlet apparatus. the extract were concentrated at 40 degree Celsius using rotatory evaporator. Finally it was dried,crushed and stored in air tight bottle for further study.

## 6.STUDY OF ANTIOXIDENT ACTIVITY BY DPPH

The antioxidant activity of the ethanol and Water extracts of elephant foot yam 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 plant extracts were prepared in ethanol and water 0.004% (Ethanol) of DPPH was prepared in ethyl alcohol and 3 ml of this solution was mixed with 3 ml 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%, 3 ml) was used as blank. The optical density was recorded and % inhibition was calculated using the formula given below

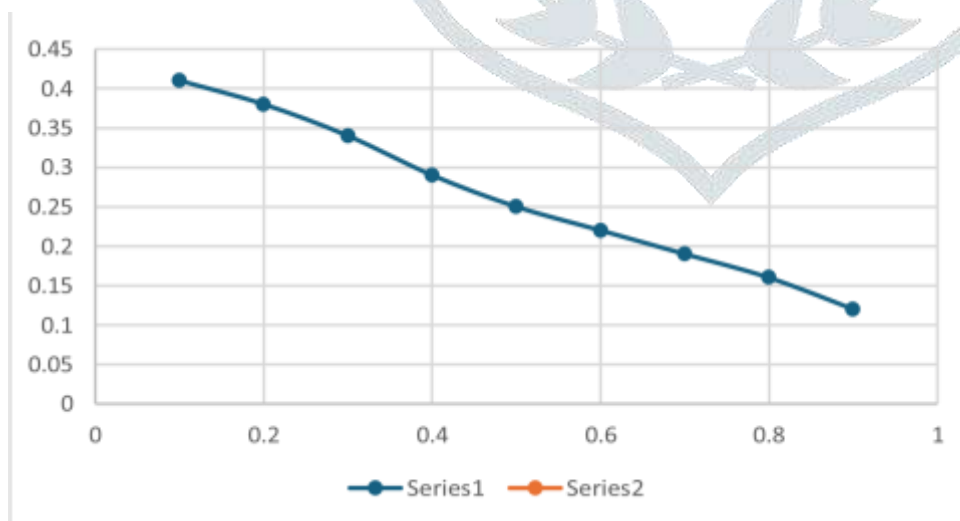
$$\text{Percentage (\% Inhibition of DPPH (\% AA))} = \frac{A-B}{A} \times 100$$

Where A=Optical density of the blank and  
B-Optical density of the sample

Optical density and percent antioxidant activity for ethanolic extract of Elephant foot yam.  
(O.D of Blank DPPH= 0.47)

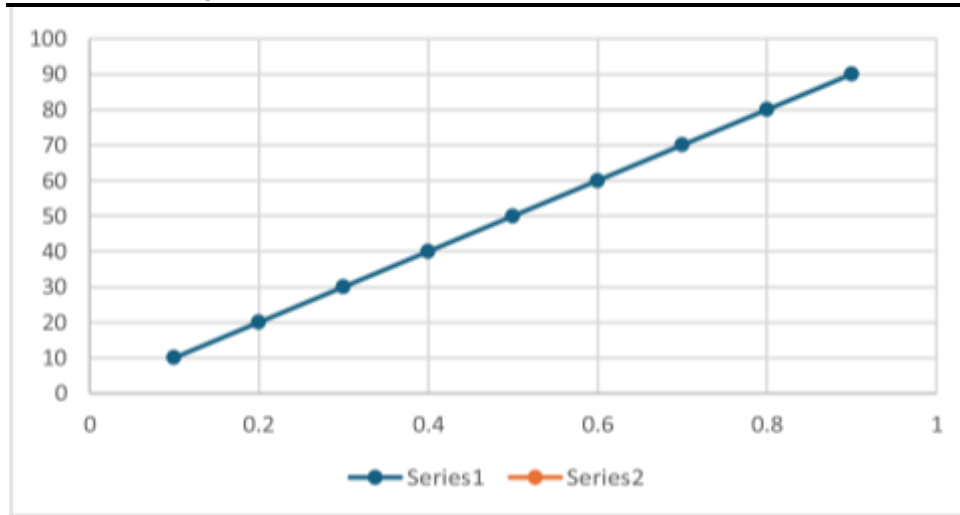
Conc. mg/ ml	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
O.D. of sample	0.41	0.38	0.34	0.29	0.25	0.22	0.19	0.16	0.12
%AA of sample	16%	28%	30%	40%	48%	55%	61%	67%	75%

Decrease of O.D sample with increase in concentration EFY's sample.



$$I_{c_{50}}=0.26$$

Increase in percent antioxidant activity with increase in conc.of EFY's sample.



$Ic_{50} = 15.5$

### 7. Conclusion:

from the study it is concluded that various phytochemicals were present in tuber elephant foot yam extract. the remarkable decrease in O.D. value and increase in %AA with increase n concentration of extract of elephant foot yam is observed which shows that it have good antioxidant activity.

**8. Acknowledgement :** We are thankful to Principal, Shankarlal Khandelwal Arts, Science, and Commerce College Akola, SGBAU University, Maharashtra, India, for making the laboratory facility available for the research work. And also thankful to the Department of Chemistry, Shankarlal Khandelwal College, Akola (M.S), India.

### 9. References:

1. Behera. A 2014 review of Amorphophallus species important medicinal wild feed crop of Odisha. [Kumar et al., 5(5): May, 2014:3512-3516]
2. P. Madhurima, I.J. Kuppast, K. L. Mankani 2012 A REVIEW ON AMORPHOPHALLUS PAEONIIFOLIUS. ISSUE 2, VOLUME 2 (APRIL 2012) ISSN: 2249-9954
3. Anuradha Singh, Neeraj Wadhwa 2014 Biochemical characterization and thermal inactivation of polyphenol oxidase from elephant foot yam (Amorphophallus paeoniifolius). *J Food Sci Technol.* 2014 Jun; 54(7): 2085– 2093.
4. Venkatraman Bansode, Vijay Bahadur Singh Chauhan, Kalidas Pati, Kiran Bhuyar, Sudhansu Shekhar Mahanand and M. Nedunchezhiyan 2019 Studies on Standardization and Physicochemical Characteristics of Elephant Foot Yam (Amorphophallus paeoniifolius) Papad. *Int. J. Curr. Microbiol. App. Sci* (2019) 8(5): 950-955
5. Dr. Veena S Jadhav, Dr. K Ramachandra Naik and Sanjana NI Joshi et.al. (2022) Utilization of tuber crops in Western Ghats of Karnataka. *The Pharma Innovation Journal* 2022; SP-11(2): 1216-1219
6. Samatha Punna, K.D. Desai, B.M. Tandel and Harish Suthar et.al. (2018) Effect of Chemicals on Growth, Yield and Quality of Elephant Foot Yam [Amorphophallus paeoniifolius (Dennst.) Nicolson]. *Int. J. Curr. Microbiol. App. Sci* (2018) 7(8): 1295-1304
7. Ratan Dasgupta 2013 Advances in Growth Curve Models.
8. Sreejani Barua, Karan Tudu, Madhulekha Rakshit, Prem Prakash Srivastav 2021 physics of Starch System: Rheological and Mechanical Properties of Hydrothermally modified Elephant Foot Yam starch. 242, 323-329 (2018)
9. S. Sunitha; James George; G. Suja; A. N. Jyothi; A. Rajalekshmi 2020 Response of varieties of Elephant Foot Yam (Amorphophallus paeoniifolius) to organic management. *Indian Journal of Agricultural Sciences* 86 (10): 1343–9, October 2016/Article. *Indian Journal of Agricultural Sciences* 86 (10): 1343–9, October 2016/Article
10. R.S. Pan, Reshma Shinde, Pradip Kumar Sarkar, Tania Seth, A.K. Singh, B.P. Bhatt 2022. DOI: 10.1016/j.sajb.2021.11.037