



## Investigation of Anti-fungal activity of flowers of *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass.

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### Abstract

One of the most common infections, fungi is responsible for a variety of diseases. Almost everyone experiences it once in their life. *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass. is a member of the Asteraceae and Araceae family respectively. The plant is indigenous to India. The plant's blossoms are used medicinally to cure a number of skin ailments. The antifungal activity of the flowers of the chosen plant is the topic of the current paper. Ethanolic extract of flowers of plant were tested for anti-fungal activity, and the zone of inhibition was noted.

**Key words:** Fungal infections, Flowers, Medicinal plants

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### Introduction

Global public health issues are caused by fungal diseases. Even though tourists are susceptible to fungal illnesses, individuals with compromised immune systems, such as those with cancer or HIV/AIDS, are particularly at risk. The skin condition known as mycosis, or fungal infection, is brought on by a fungus. Fungi come in millions of different species. They can be found living in the mud, on plants, household items, and even on your skin. They can occasionally cause skin conditions like rashes or pimples. [1]

The most difficult duty is to treat bacterial and fungal skin infections, which are a serious concern worldwide. Various pharmaceutical businesses produce a variety of goods and/or medications to treat skin issues. However, this technique necessitates looking for alternative sources of chemically manufactured ones because of issues with microbial drug resistance. Based on traditional knowledge, a lot of researchers have been studying medicinal plants, and this research has been a great source of bioactive substances. These substances have a variety of biological activities that are health-protective against fungus and bacteria that cause skin diseases.

A new path for commercialization and understanding of some potential plant species used to treat skin ailments should result from focusing on these factors. [2]

Traditionally, the all parts of the plants especially roots, leaf and flowers are used for rheumatic problems and also serves as a tonic. Flower heads are used against scalds, burns, ringworm and some skin diseases. [3-5]

During past few years plant derived extracts and their isolated phytochemicals are gaining importance and are also a new emerging area of research. In last two decades anti-fungal effects in the category of anti-microbial is of great interest. The present study was designed to evaluate the flowers extracts of *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass. widely used to treat the fungal infection as mentioned in traditional system of medicine.

### Material and Methods

#### Collection of herbs and their authentication

The flowers of *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass. were collected in the months of July-September 2020 from the various local sites of Malwa region of Madhya Pradesh and



identified & authenticated by Dr. S. N. Dwivedi, Prof. and Head, Department of Botany, Janata PG College, A.P.S. University, Rewa, (M.P.) and was deposited in our Laboratory. Voucher specimen No. J/Bot/-GAF-029 & J/Bot/-SAF-030 was allotted.

#### **Extraction of Plant Material**

Sample were shattered and screened with 40 mesh. The shade dried coarsely powdered plant material (250 gms) were loaded in Soxhlet apparatus and was extracted with ethanol until the extraction was completed. After completion of extraction, the solvent was removed by distillation. The extracts were dried using rotator evaporator. The residue was then stored in dessicator and percentage yield were determined. [6]

#### **Anti-fungal of extracts [7-10]**

##### **Fungal strain**

Fungal strain i.e., *Candida albicans*, *Cryptococcus neoformans* and *Aspergillus flavus* were used for the present investigation. The inoculum of strains were transferred to the recultured before starting the lab work.

##### **Screening of Anti-fungal activity (Disc diffusion method)**

##### **Preparation of Disc**

Disc of whatsmann filter paper of one quarter inch in diameter was prepared and the same was sterilized using autoclave.

##### **Preparation of samples entrapped disc**

The accurately weighed flower extracts were dissolved in methanol of different stock solutions (10, 20, 30, 40, 50 µg/ml) solutions were prepared. All the dilution prepared was applied to whatsmann filter paper disc using a micropipette. The disc were then dried and sterilized.

##### **Preparation of culture plate**

The sabouraud's agar and mueller Hinton agar media were prepared by dissolving media in 1000 ml of distilled water and

sterilized by autoclave at 121°C for 1 hour. The media were cooled and poured in sterilized petri plate to solidified at room temperature.

##### **Evaluation of Zone of inhibition**

The re-cultured fungal strains were used for antifungal evaluation. The strains were streak on the Mueller Hinton media and the drug entrapped patches were placed. For negative control disc of distilled water and for positive control amphotericin B disc (10 µg) were used. The petri plates were kept in incubator for 24 hrs. After 24 hrs the petri-plates were checked for zone of inhibition. The zone of inhibition diameter was recorded with the help of zone reader scale. The zone of inhibition was calculated by subtracting diameter of sample or standard or control by diameter of disc. The more the zone of inhibition the more will be antifungal activity.

##### **Results and Discussion**

Anti-fungal activity of flowers of *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass. were evaluated. The zone of inhibition of ethanolic extract on *Candida albicans*, *Cryptococcus neoformans* and *Aspergillus flavus* were presented in table 1. Results indicate (Graph 1) that EESAF and EEGAF have significant anti-fungal activity when compared with standard drug amphotericin B.

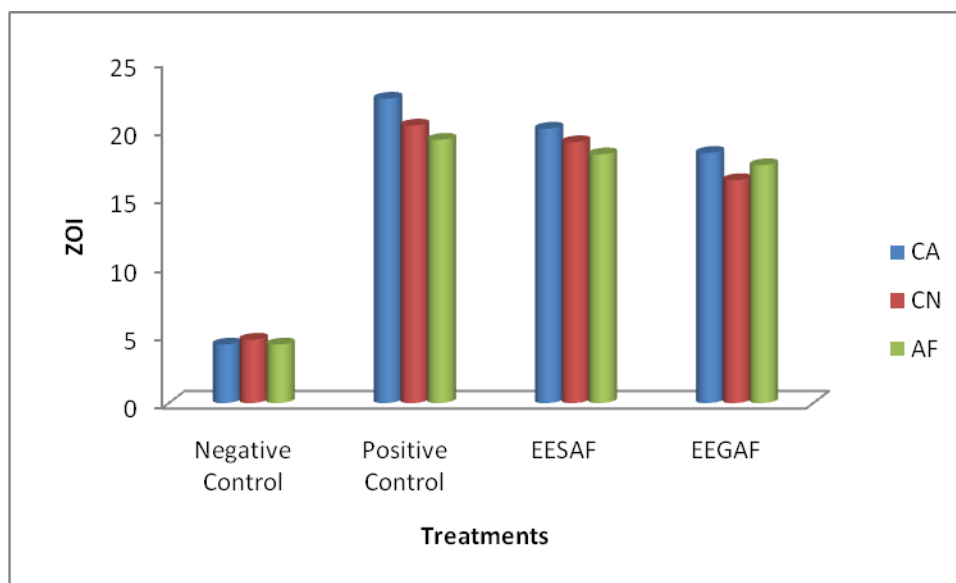
##### **Conclusion**

The result indicates that EESAF possess significant anti-fungal activity when compared to standard drug and have more potent activity than EEGAF. Further research is warranted to isolate the compounds responsible for the observed biological activity will be of great interest to developed new phyto-formulations.

**Table 1: Anti-fungal activity of Flowers Extract of *Guizotia abyssinica* (L.f.) Cass. and *Sarcosteema acidum* (L.f.) Cass.**

S/No.	Test/Extract	Zone of Inhibition (mm)		
		CA	CN	AF
1.	Negative Control	4.29±0.15	4.64±0.02	4.29±0.11
2.	Positive Control	22.29±0.02**	20.32±0.19**	19.28±0.09**
3.	EESAF	20.09±0.11**	19.10±0.02**	18.21±0.08**
4.	EEGAF	18.32±0.10**	16.32±0.15**	17.42±0.32**

**Note:** All values are expressed as Mean (X) ±SEM, (n=3). One way ANOVA followed by student test, values are statistically significance \*P<0.001, \*\*P<0.01 when compared with control and standard.



**Graph 1: Anti-fungal activity of various Flowers Extract**

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