# Combined Effect of *Asparagus Racemosus* and Ecliptaalba as Anticandidal Drug and its Underlying Pharmacognostic Properties

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**Abstract-**Ecliptaalba and Asparagus racemosus is widely used in Ayurveda to cure various ailments. Plants and plant derived preparations have been used as traditional remedies and in medicines for the different treatments. The in vitroanticandidalactivity of Shatavri the "queen of herbs" and Eclipta alba "False daisy'' and "King of hairs" was tested against Candida Albicans and various extract of both the plants were evaluated for Pharmacognostic studies. Ecliptaalba is an important medicinal plant used in treatment of various health problems including digestion, asthma, cough, headache, and skin color.It also shows antimicrobial activity against candida and a very promising result against the fungal strain. Also the extract of Asparagus racemosus showed high degree of activity in case the same strain and both the plants were found similar with that of standardantibiotics use. This research paper throws light on the above pharmacognostic and antimicrobial properties. Both the plants were used as therapeutic agent for human disease.

**Keywords:** Ecliptaalba, Asparagus racemosus, Candida albicans, Anticandidal activity.

## Introduction

Plants are parallel to human beings and no doubt are much safer medicine options, and therefore the use of herbal medicines in recent years for primary health care is increasing worldwide, especially in developing countries. Medicinal plants are of great importance to the health of individuals and communities. The medicinal values lie in chemical active substances that produces specific physiological action on human body.Medicinal plants produces a diverse range of bioactive molecules, making them rich source of different types of medicines. According to WHO about more than 80% of world population use herbal medicines. Worldwide about more than thousands of plants are been used as medicine, the plant extracts from Asparagus racemosus and Ecliptaalba have been tested for antimicrobial activity against Candida albicans.

Shatavri also known as the queen of herbs has been a boon to mankind, as it is said prevention is better than cure, Shatavri is used in various tonics, health supplements owing to its medicinal properties. It is used in treatment of ulcer, gout, asthma, diuretics and is also been found to have anticandidal activity .Candida being a really harmful pathogenic fungal to human causes gut infection skin infection.

Ecliptaalba belongs to the family Asteraceae. This weed basically grows in tropical and sub-tropical regions. Ecliptaalba has various names include bhangara in Hindi, maakaa in Marathi, bhangaro in Gujaratkesuriya in Bengali and galagara in Telegu. It contains many bioactive componentsi.e. triterpenes, flavonoids,steroids, polypeptides, poly acetylenes and thiophene derivatives. It is used in the treatment of gastrointestinal disorders, respiratory tract disorders, fever, hair loss and liver disorders. In Ayurveda, its leaf extract is considered a powerful liver tonic, rejuvenate, and especially good for the hair. Candia albicans is a polymorphic fungus, a member of the normal human microbiome. In most individuals, Candida albicans resides as a lifelong, harmless commensal. Under certain circumstances, however, C. albicans can cause infections that range from superficial infections of the skin to life threatening systematic infections. Several factors and activities have been identified which contribute to the pathogenic potential of this fungus. Pure culture of Candida albicans were made separately and maintained at on nutrient

agar. The pure culture was used for testing antifungal activity.

## Material And Methods

### Plant Material

Whole plant of Ecliptaalba and Asparagus racemosus was collected. The leaves of Ecliptaalba and roots of Asparagus racemosus was collected from the Himalaya Drug Company, Dehradun, India. The collected leaves and roots were cleaned properly under running tap water to make them free from soil and dust and then dried for 24 hours and then oven dried at 105 degreesCelsius for 6 hours. Dried leaves and roots were chopped and ground to coarse powder using an electronic grinder. identified, collected, washed, shade dried for 24 hours and then oven dried at 105 C for 6 hours.

| Extracts ( Eclipta Alba) | Candida Albicans |
|---|---|
| Methanol | 11 Mm |
| Ethanol | 14 Mm |
| Chloroform | 13 Mm |
| Aqueous | Not Detected |
| +Vecontrol | 30 Mm |

| Extracts ( Shatawri) | Candida Albicans |
|---|---|
| Methanol | 12 Mm |
| Ethanol | 13 Mm |
| Acetone | 20 Mm |
| Chloroform | 12 Mm |
| Aqueous | Not Detected |

## Preparation of Plant Extracts

The powder of both the plants was prepared separately by mechanically grinding the roots of Asparagus racemosus and leaves of Ecliptaalba. The powder was sieved by using 60 mesh.

Different extract was prepared by dissolving the powder in various solvents. 5 gm powder in 100 ml of solvent was kept for 24 hrs. and shaken at regular intervals, then filtered. The filter cake was discarded and filtrate was collected, and concentrated to 20 ml by evaporating it using hot water bath.

### Aqueous extract of Shatavri

5gm of Shatavri powder weighed by electronic balance is added to 100 ml of distilled water in stoppered conical flask along with 4-5 ml of chloroform, is mixed and shaken at regular intervals for 24 hrs. Chloroform is used to as to prevent contamination since fungal growth is common in water.

5gm of Ecliptaalba powder weighed by electronic balance and added to 100 ml of distilled water in stoppered conical flask and 4-5 ml of chloroform in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

### Chloroform extract

5gm of Asparagus Racemosus powder weighed and added to 100 ml of chloroform in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

5gm of Ecliptaalba powder weighed and added to 100 ml of chloroform in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

### Methanol extract

5gm of Asparagus Racemosus powder weighed and added to 100 ml of methanol in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs. 5gm of Ecliptaalba

powder weighed and added to 100 ml of Methanol in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

### Ethanol extract

5gm of Asparagus Racemosus powder weighed and added to 100 ml of ethanol in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

5gm of Ecliptaalba powder weighed and added to 100 ml of ethanol in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

### Acetone extract

5gm of Asparagus Racemosus powder weighed and added to 100 ml of Acetone in stoppered conical flask, mixed and shaken at regular intervals for 24 hrs.

All the extracts were filtered using whatsman filter paper no. 41_.the filter cake was discarded and the filtrate was collected and concentrated. The volume is made upto 20 ml by evaporating is using hot water bath.

**Media preparation**

The media was prepared by dissolving nutrient agar in distilled water and was autoclave at 121 C for 15 minutes. 20 ml of sterile agar media plates were poured in sterilized petri dish and allow to solidify which were used for testing antifungal activity. 300ml of Nutrient broth
was prepared and inoculated by pre inoculated candida albicans strain. 14 Nutrient agar plates were prepared. The activity is tested by well diffusion method.

**Anticandidal activity assay**

A well of size 5 mm diameter is punched using borer. Each extract sample was loaded in the well separately and incubated at 24 C for 24 hrs. As this is the best temp for growth of fungus.

## ResultsAnd Discussion

**Phytochemical screening**

The chloroform, methanol, ethanol, acetone and aqueous (water) extracts of Ecliptaalba leaves and roots of Asparagus racemosus were subjected to phytochemical screening for the presence of alkaloids, terpenoids, flavonoids, tannins, saponins according to standard procedures.

The qualitative phytochemical screening revealed the presence of various phytoconstituents in different extracts of plants. It is evident that the methanol extract recorded the presence of maximum number of chemical constituents including terpenoids, flavonoids, saponins, alkaloids and tannins. Terpenoids were detected in all the extracts whereas saponins, alkaloids, and tannins were absent in chloroform extract.

Presence of diverse range of secondary metabolites in both the plants is indicative of significant therapeutic activity. The presence of flavonoidsare considered to be good free-radical scavengers, indicate that the plant may have anti-oxidant properties and they are accountable for biological actions. Terpenoids also play an active role in wounding healing, strengthen the skin, increase the concentrations of antioxidant in wounds, and restore inflamed tissues by increasing blood supply. Saponins have the property of coagulating and precipitating red blood cells and hemolytic activity.Steroids have been reported to have antibacterial properties and they are very important compounds especially due to their relationship with the compounds.

**Qualitative analysis of *Asparagus Racemosus* roots extracts**

| **Phytochemicals** | **Extracts** | |
|---|---|---|
| | **Ethanol** | **Acetone** |
| **Sterols** | + | + |
| **Alkaloids** | + | + |
| **Flavonoids** | + | - |
| **Amino acids** | + | + |
| **Tannins** | + | + |

**Qualitative analysis of *asparagus Racemosus* roots extract**

| **Phytochemicals** | **Extracts** | | | |
|---|---|---|---|---|
| | **Ethanol** | **Aqueous** | **Chloroform** | **Methanol** |
| **Terpenoids** | + | + | + | + |
| **Alkaloids** | + | + | - | + |
| **Flavonoids** | + | + | + | - |
| **Saponins** | + | + | - | - |
| **Tannins** | + | - | - | + |

**Anti-Fungal Activity Assay**

The antifungal activity of methanol, ethanol,chloroform, aqueous and acetone extracts of Shatavri and Eclipta alba leaves was determined against Candida albic and fungi by the agar well diffusion method. The results of antifungal activity assay

.**Conclusion**

The chemical drug areused to control fungal infection in humans caused by candida albicans, this study shows that Asparagus racemosus can be potent herbal medicine for the treatment of candida albicans infection. The bioactive compounds secreted from the plants with acetone extract and ethanol extract of Eclipta alba targets candida albicans. Pharmacognostic evaluation of both plants is made, compared and added accordingly to develop a bioactive extract at par with positive control.

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