



## Formulation and Evaluation of Antifungal Dusting Powder from *Butea Monosperma*.

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### ABSTRACT:

The plant of *Butea Monosperma* is also known as flame of the forest. It have been employed for therapeutic benefits i.e anti-fungal, anti-inflammatory, antimicrobial, anti-cancer, anti-diabetic etc. In the present work ,the antifungal effect of various extract from *Butea Monosperma* were evaluated against the *Cladosporium Cladosporioide* fungus.

**Key words:** *Butea monosperma*, Medicarpin, Anti-fungal dusting powder.

### INTRODUCTION:

*Butea Monosperma* is a very wonderful plant. It is commonly known as Palash (in Hindi and Marathi). It comes under the family of Fabaceae. It is native to Bangladesh, India, Nepal, Bhutan, Pakistan, Thailand, Sri Lanka, Western Indonesia and Myanmar. Is mostly absent in arid regions, mostly found in the greater parts of India and in the greater parts of the India up to 1000 MSL (minimum sea level) and greater in the outer Himalaya. *Butea Monosperma* grows well in the waterlogged conditions, saline soil, alkaline soil, black cotton soil, and barren land. Palash is described in Upanishads, Vedas, Susrirta Samhita, Charaka Samhita, Astanga Sangraha, Ashtanga Hridaya and any other Ayurveda books. It is called as Flame of the forest.

### BOTANICAL CLASSIFICATION OF BUTEA MONOSPERMA:

**Kingdom:** Plantae.

**Sub-Kingdom:** Tracheobionta (Vascular plants).

**Division:** Magnoliophyta (Flowering plant).

**Class:** Magnoliopsida (Dicotyledons).

**Order:** Fabales.

**Family:** Fabaceae.

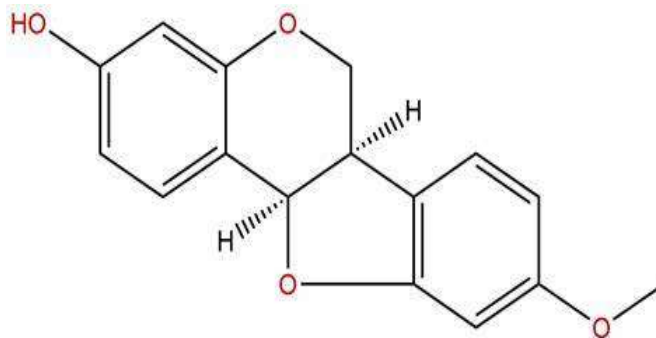
**Genus:** *Butea*.

### THERAPEUTIC USES OF BUTEA MONOSPERMA.

#### ACTIVE CHEMICAL CONSTITUENT:

##### 1. Medicarpin:

An isoflavonoid phytoalexin with antioxidant and antifungal properties, is produced by leguminous plants mainly in response to biotic or abiotic elicitation. Is mainly used as antifungal agent.



**Fig. Structure of Medicarpin.**

#### **Antifungal Dusting Powder :**

Antifungal Dusting Powder :Antifungal Dusting Powder is an antifungal medicine. It is used to treat skin infections caused by fungi. It works by killing and stopping the growth of fungi, thereby clearing the infection and relieving the symptoms

There are two types of antifungals: local and systemic. Local antifungals are usually administered topically or vaginally A fungal infection, also called mycosis, is a skin disease caused by a fungus. There are millions of species of fungi. They live in the dirt, on plants, on household surfaces, and on your skin. Sometimes, they can lead to skin problems like rashes or bumps There are various types of fungal infections but commonly caused infections are ringworm and yeast infection.

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#### **MATERIALS USED IN ANTIFUNGAL DUSTING POWDER:**

##### **1.Chemicals:**1.Talc

2.Zinc oxide

3.Starch

4.Salicylic Acid

5.Menthol

##### **2.Active ingredient:**1. Medicarpin.

##### **3.Equipments:**1.Grinder

2.Mortar and pestle

3.Sieve

#### **PLAN OF WORK:**

The purpose of the present study was to formulate and evaluate antifungal powder to give fungicidal or fungistatic effect. The powder was prepared by using the API, chemicals like, zinc oxide, starch and salicylic acid were utilized as excipients and talc powder was utilized as a base. The powder was prepared by homogenous mixing of all the excipients.

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#### **OBJECTIVES :**

1. Antifungal Powder helps to control fungal infections (*Cladosporium Cladosporioides*) caused by sweat and moisture.
2. It relieves itching in intimate body parts underarms, inner thighs, waistline and feet.
3. It discourages new fungal growth and prevents re-infection.
4. It inhibits the protective layer formation of fungi thereby reducing its multiplication ability.
5. There is no marketed preparation available in the market at the present time so we are trying to formulate and evaluate the antifungal powder to treat fungal infection using medicarpin as active ingredients

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**METHODS OF POWDER MAKING : (Trituration Method)**

Medicarpin + zinc oxide



Mixing (mortar pestle)



Starch



(Again mix)



Talc(Mixing)



Add Menthol Powder



Sieve (number 18)



Uniform dusting powder formed




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**EVALUATION OF GEL\EVALUATION PARAMETERS:**

EVALUATION (powder)

1) Bulk and Tapped density.

Bulk density measurement carried out by using flat- round measuring cylinder with a volume of 250ml. The measuring cylinder was half filled with the 5gm of the powder and the reading was observed to the nearest milliliter. Bulk density =  $w/v_0$  After 50 and 100 taps the corresponding reading was observed to the nearest milliliters. The tapped volume was recorded when the difference between the two volumes was smaller than 1 ml. Tapped density After 50 tapping =  $w/v_1$  After 100 tapping =  $w/v_2$

2) Angle of repose

It was determined by fixed funnel method onto a bottom graph paper. The funnel was fixed on a height, and moved according to the height of the conical heap in order to keep a constant distance between the top of the heap and the funnel. The angle of repose was determined by measuring the height of the cone of powder with the help of the formula.

Angle of repose =  $\tan^{-1}(h/r)$

3) Hausner's ratio

Flow property was defined according to the Hausner ratio  $\text{Hausner ratio} = (\text{Tapped density}) / (\text{Bulk density})$  Flow of powder was measured using a standard funnel. In a dry funnel, whose bottom opening has been blocked, the sample was introduced without compacting. After removing the blockage from the bottom opening of the funnel, the time taken for the entire sample to flow out through the funnel was measured.

Hausner ratio = (tapped density / bulk density)

#### 4) Moisture content test or hygroscopy

The hygroscopic nature can be analysed by putting the formulation in open environment at room temperature after weighing it. After sometime place it in a hot air oven and observe the weight loss by weighing it after some time.

#### 5) Skin irritancy test:

The formulation was applied on the human skin.

#### 6) Stability test

The powder was packed in a container and was stored at room temperature. After 1 month the powder was checked for its organoleptic property.

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### CONCLUSION:

Topical treatment of the fungal infections has been preferred due to its advantages over oral treatment such as inhibition of systemic first-pass metabolism, targeting of the drug on the site of infection. On the other hand, appropriate drug concentrations in target site of the skin should be provided to ensure the effective topical treatment. In this context, formulation of topical antifungal dosage form plays a key role for inhibition of the fungal infection by showing direct action on the skin. On the basis of results the formulation was stable and effective against the various fungal infection such as Cladosporium Cladosporioides, Candidiasis, Dermatophytid, Body ringworm etc .

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### RESULT:

•The anti-fungal dusting powder were prepared with the combination of Medicarpin, Talc, Starch, Zinc Oxide, Menthol. The anti-fungal dusting powder was prepared successfully.

•The result indicates that the studies of formulation and evaluation for topical antifungal dusting powder of Cladosporium Cladosporioides using Butea-Monosperma stem bark.

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