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A Detailed Pharmacognostic, Physicochemical And Powder Analysis Of Ahiphena Bija Curna (*Papaver Somniferum* Linn.)

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ABSTRACT:

Ahiphena bija or *Khaskhas* or Postadana or Poppy seeds are the seeds of (*Papaver somniferum* Linn.) belonging to family Papaveraceae. It is cultivated in Eastern countries and India under license. The seeds are White or Black in colour. Seeds contain large percentage of bland fixed oil called as Poppy oil. Poppy seeds are demulsant, Nutritive and Aphrodisiac. To study the Macroscopic, Microscopic, Physicochemical and Powder analysis of the plant Ahiphena bija for Purification, Identification and Standardization of the plant.

Methods: The standard Pharmacognostical methods are done on Ahiphena bija curna (*Papaver somniferum* Linn.)

Results: Ahiphena bija showed that the seeds are small and Round to Reniform or Kidney shaped generally dirty White occasionally found with a few Brownish or Greyish colour. Ahiphena bija shows the presence of crystal of Calcium oxalate, abundant Oil drops and Aleurone grains. Powder analysis shows the presence of fatty Oily droplets, penta to hexagonal Testa cells, Crystals and Fibers. Physicochemical studies shows Loss on Drying is **11.56%**, Total Ash value is **6.67%**, Acid Insoluble Ash is **0.17%**, Alcohol Soluble Extractive is **33.25%**, Water Soluble Extractive is **11.89%**.

Keywords: Ayurveda, Ahiphena bija, *Papaver somniferum*, Pharmacognostic, Standardization, Physicochemical and Powder analysis.

INTRODUCTION

Ahiphena bija (*Papaver somniferum* Linn.) is a medicinal drug belongs to the family *Papaveraceae*. It is a Glaucous, Erect, Annual herb. Cultivated under State control in certain areas of Rajasthan, Madhya Pradesh and Uttar Pradesh. Seeds are inodorous and Oily in taste. Poppy seeds are considered as Nutritive and used in Breads, Curries and Sweets.

Drug description:

The seeds of **Ahiphena bija** was taken from Pasuparthi market in Tirupati, Andhra Pradesh, India. which are genuine, good quality, material are free from any worm infestations for the studies.

Observation and Results:

- Name of the Sample : **Ahiphena bija**
- Scientific Name : *Papaver somniferum* Linn.
- Family : Papaveraceae
- Plant part : Seed

Macroscopic properties of Ahiphena bija:

- Size** : 1.0 -1.15 mm long
- Shape** : Round – Reniform or Kidney shaped
- Colour** : White or Black in colour
- Odour** : Aggreable
- Taste** : Madhura

Microscopic study:

Sectional view of seed showed the layers, outermost layer contain thick walled parenchymatous cells, Testa and cuticle, the next layer is Hypodermis consists of polygonal or elongated cells containing minute micro-sphenoidal **crystals of calcium oxalate and Starch grains**. Endosperm containing Cotyledon, abundant **Oil drops and Aleurone grains**.

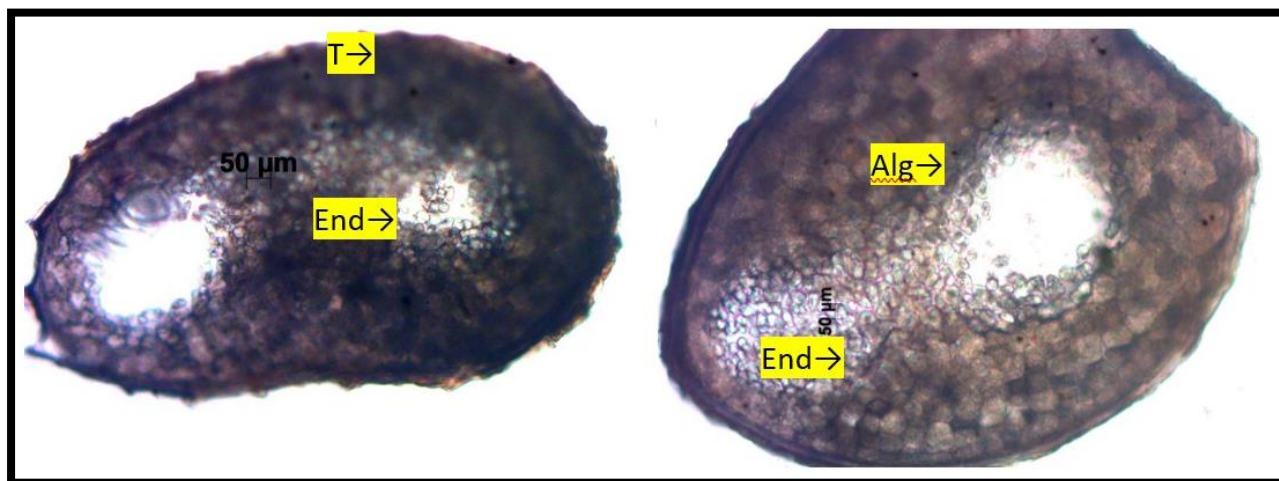


Image No. 1: TS of seed

Image No. 2: Endosperm containing aleurone grains, starch, oil cells

Alg – Aleurone grains; End– Endosperm; T – Testa.

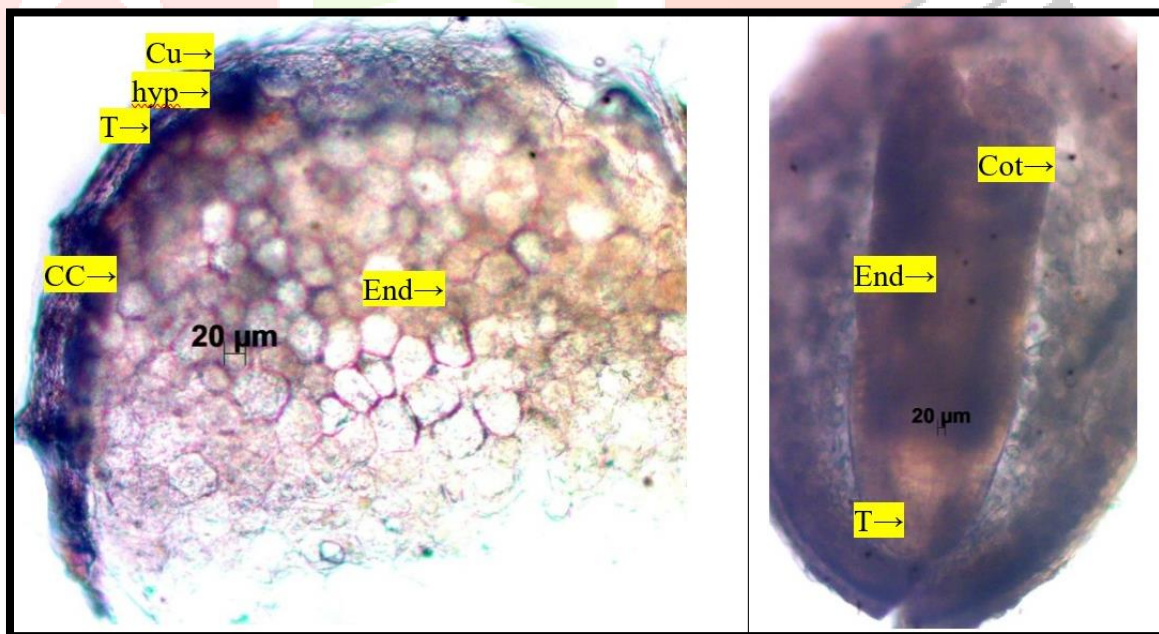


Image No. 3: Testa and endosperm

Image No. 4: Testa, endosperm, cotyledon

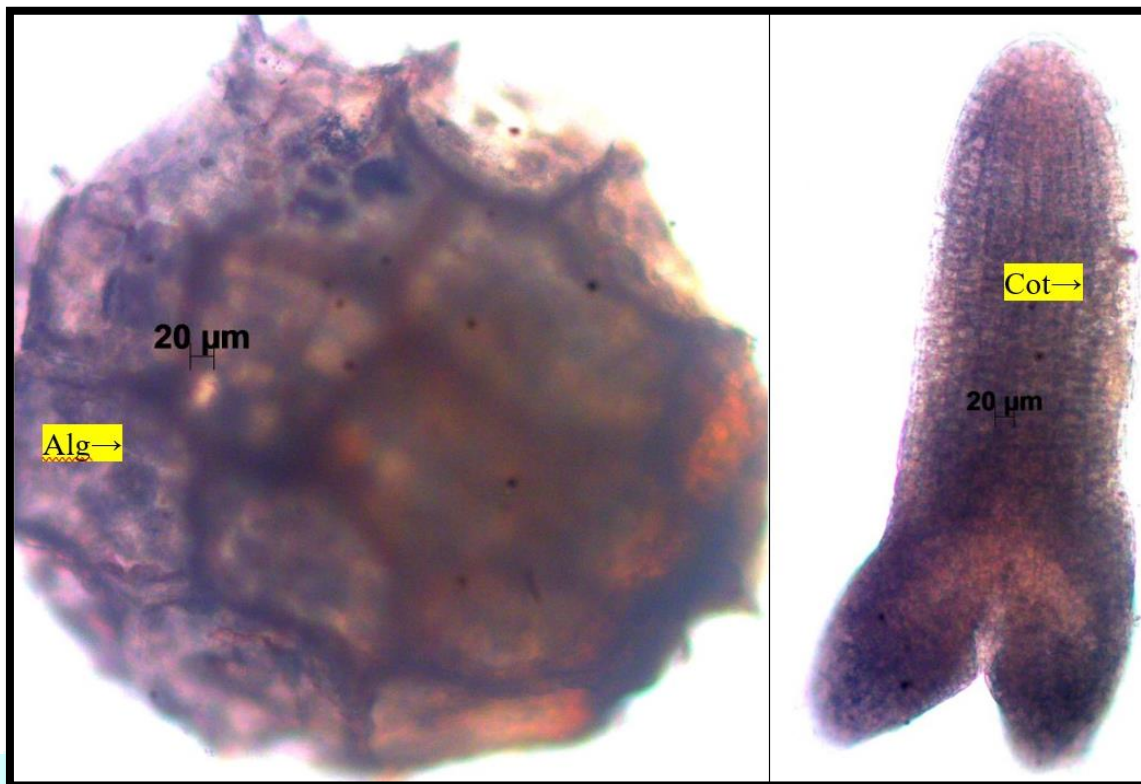


Image No. 5: Endosperm

Image No. 6: Cotyledon

Alg – Aleurone grains; **Cot** – Cotyledon; **CC** – Collapsed cells; **Cu** – Cuticle; **End** – Endosperm; **hyp** – Hypodermis; **T** – Testa.

Powder Microscopy

Pinch of **Ahiphena** (*Papaver somniferum* Linn.) bija powder previously sieved was put on the slide and mounted in Glycerine and powder characters are observed. Light brown, coarse, not free flowing, clot or ball forming, under Microscope exhibits large Fatty Oil droplets, characteristic Penta to Hexagonal Testa cells, Endosperm and Reticulate layer cells; cells containing characteristic Crystals and Fibers also present.

Powder Analysis:

- Light brown in colour.
- Epidermis of Cotyledon measuring 50µm in diameter.
- Endoderm containing Oil globules, Starch, Aleurone grains 20µm in diameter.

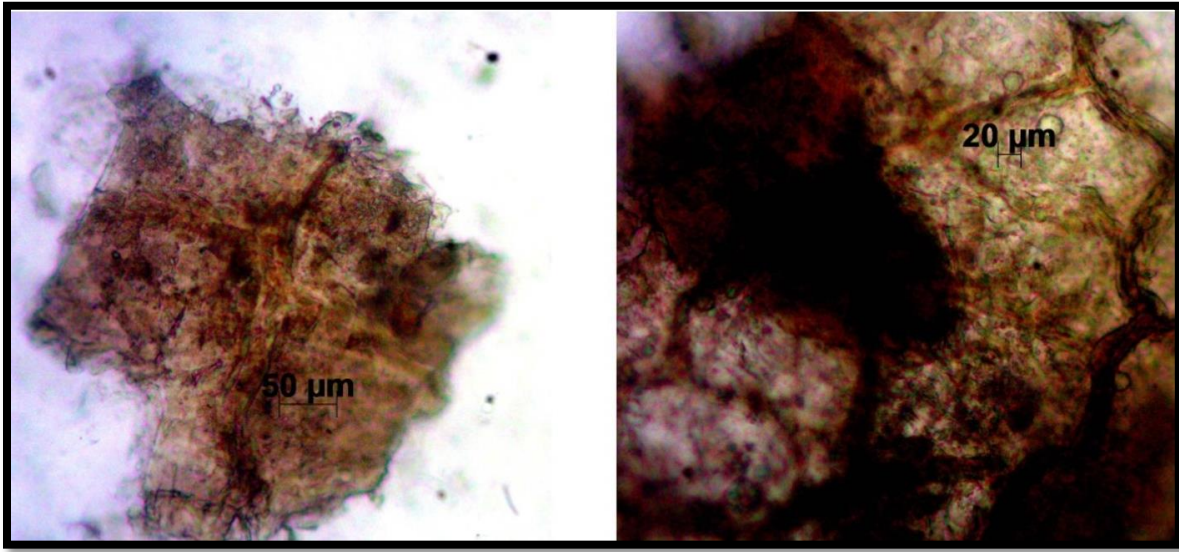


Image No. 7: Epidermis of cotyledon

Image No. 8: Endosperm

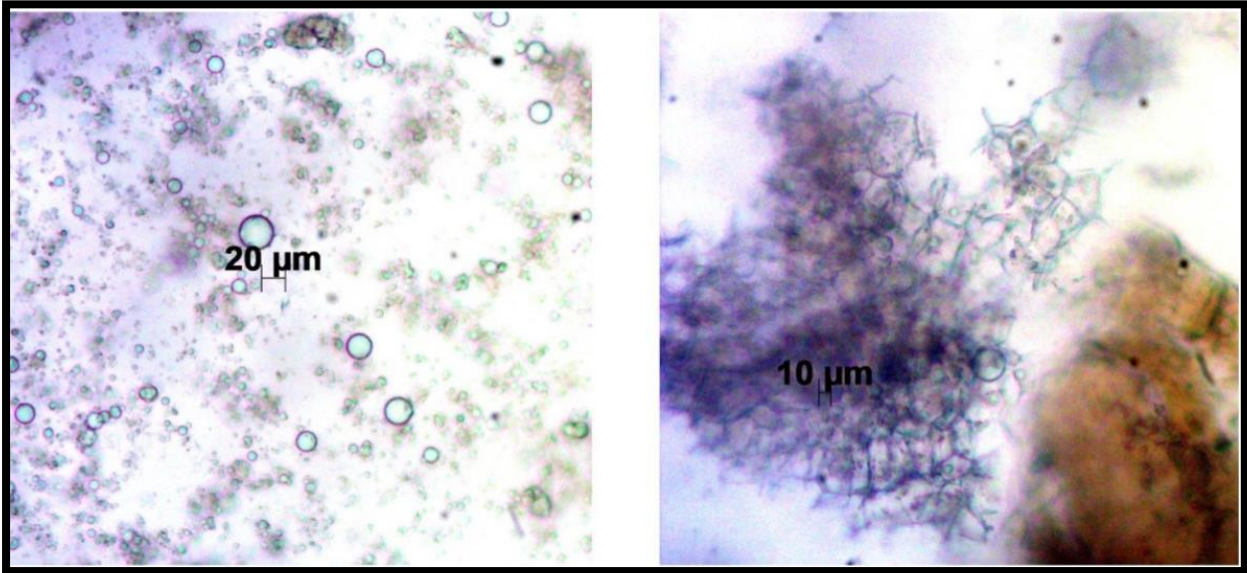


Image No. 9: Oil globules, starch, aleurone grains

Image No. 10: Endosperm

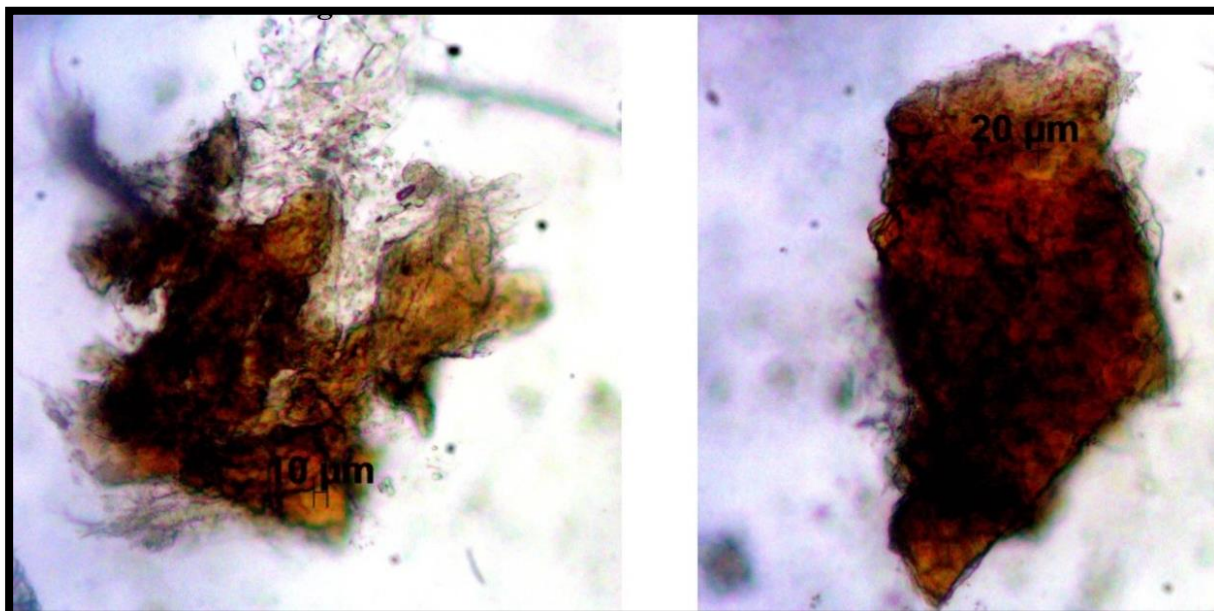


Image No. 11: Sclereids from testa

Image No. 12: Fragment from cotyledon

Physicochemical study Identity, Purity & Strength methodology:

The physicochemical properties like Loss on Drying, Total Ash, Acid insoluble Ash, Water soluble Ash, Alcohol Soluble Extractive value and Water-Soluble Extractive value of the powder were determined.

Parameter	Results n = 3 %w/w
Loss on Drying	11.56±0.01
Total Ash	6.67±0.32
Acid Insoluble Ash	0.17±0.00
Water Soluble Ash	0.00±0.00
Alcohol Soluble Extractive value	33.25±0.00
Water Soluble Extractive value	11.89±0.00

- **Loss on Drying** is **11.56%** shows that it may be due to the Abundant Oil content in it.
- **Total Ash value** is **6.67%** may be due to the presence of Inorganic matters like Copper, Manganese etc.
- The **High Range of Alcohol Soluble Extractive 33.25%** when compared to **Water Soluble Extract 11.89%** indicates that the Chemical Composition are more in Alcohol Soluble when compared to the Water Soluble so it is noticed that Asavas are more famous than other preparations.

DISCUSSION

The Pharmacognostic study of Ahiphena bija showed the Description-Macroscopic and Microscopic study. The Macroscopic study reveals that the Seeds are small 1.0 to 1.15 mm long Round- Reniform, Black or White in color. Inodorous Sweet and Oily in taste. Microscopic study reveals that the outermost layers is epidermal-contain thick-walled parenchymatous cells. Endodermis contain thin-walled parenchymatous cells, abundant Oil drops, Starch grains and Aleurone grains. Powder analysis of Ahiphena bija shows the presence of Oil droplets, penta to hexagonal Testa cells, Crystals, Fibers, Oil globules, Starch and Aleurone grains. The Physicochemical studies of Ahiphena bija:

- Moisture content of dry powder of Ahiphena bija is- **11.56±0.01** which seems to be lower than that of necessary to support the growth of microbes such as Bacteria, Fungus and Yeast which may bring changes in the drug. The loss on drying of Ahiphena bija **11.56±0.01** have more presence of **Moisture content** and **Oil content**.
- Ash values are determined in **3** forms such as Total Ash, Acid Insoluble Ash and Water Soluble Ash. The values of these are Total Ash **6.67±0.32**, not more than **8%**, Insoluble Ash **0.17±0.00**, not more than **1.5%**, Water Soluble Ash **0.00±0.00**. These values are within API limits.
- Alcohol Soluble Extractive values is **33.25±0.00**, not less than **7%**, Water Soluble Extractive value is **11.89±0.00**, not less than **13%** respectively. The extractive value gives idea about the Chemical constituents and Solubility. From the above observation the Chemical composition are more in Alcohol when compared to Water. So it can noticed that Ahiphena bija (*Papaver somniferum* Linn.) is more Soluble in Alcohol than Water.

CONCLUSION

The Pharmacognostic study of Ahiphena bija helps in to correct Identification and assess the Quality and Purity of the drug. The Physicochemical studies helps in Identity, Purity and Strength. Powder analysis shows the presence of Crystals, Fibers, Oil globules, Starch and Aleurone grains.

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