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Pharmacognostical Study of *Snuhi* (*Euphorbia nerifolia* Linn.)

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Keywords: *Snuhi, Snuhi Panchanga, Kshara,* Macroscopic study, Microscopic study.

ABSTRACT

Snuhi consists of stem of *Euphorbia nerifolia* Linn. (Family Euphorbiaceae), a large branched, erect, glabrous, Succulent, xereophytic shrub occurring wild on rocky ground throughout central India and extensively grown as a hedge plant. *Snuhi Kshara* prepared by processing the ash of *Snuhi Panchanga* is widely used in Ayurvedic classics to treat vitiated conditions. Snuhi possesses *Tikta- Katu Rasa, Guru- Tikshna Guna, Ushna Virya* and *Katu Vipaka.* In present study, Macroscopic study, Microscopic study and Powder microscopic study was done to collect information regarding *Snuhi. Snuhi Panchanga powder* was also analyzed for Organoleptic, Physicochemical and Phytochemical analysis. Alkaloid, Carbohydrates, Amino acids, Flavanoids, Saponin and Steroids were found to be present in *Snuhi Panchanga* Powder.

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INTRODUCTION

Snuhi consists of stem of *Euphorbia nerifolia* Linn. (Family Euphorbiaceae), a large branched, erect, glabrous, Succulent, xereophytic shrub occurring wild on rocky ground throughout central India and extensively grown as a hedge plant.[i] Snuhi possesses *Tikta-Katu Rasa, Guru- Tikshna Guna, Ushna Virya* and *Katu Vipaka.*[ii]

The American Society of Pharmacognosy defines pharmacognosy as "the study of the physical, chemical, biochemical and biological properties of drugs, drug substances or potential drugs or drug substances of natural origin as well as the search for new drugs from natural sources".[iii]

Ayurveda emphasis proper identification of a drug with proper quantity through that we can get expected results. Without knowing name, form and properties of drug or despite of having knowledge of it, if we shouldn't administered it properly it will be results in bad consequences.[iv] *Snuhi Kshara* is prepared by processing the ash of *Snuhi Panchanga.*[v]

The present study deals with the Pharmacognostical, Analytical and preliminary phytochemical studies on *Snuhi Panchanga.*

AIMS AND OBJECTIVES

- To identify and authenticate fresh *Snuhi* and dry Powder of *Snuhi Panchanga* (*Euphorbia nerifolia* Linn.)

COLLECTION OF RAW DRUGS

The fresh *Snuhi Panchanga* was collected from Sundar Ayurved Pharmacy, J.S. Ayurved Mahavidyalaya, Nadiad with due permission from Concern authorities.

MATERIALS AND METHODS

1. Material:

The fresh *Snuhi* and dry *Snuhi Panchanga* Powder were used as material for the present study.

2. Pharmacognostical study:

Conventional pharmacognostical method was used for the study of macroscopic, microscopic characters of the *Snuhi Panchanga*.

Method of macroscopic study:

Macroscopic characters of all parts were studied by observing under the dissecting microscope.

Method of microscopic study:

Material: Fresh *Snuhi stem* and *leaves*, Dry *Snuhi Panchanga* powder.

Equipments: Compound microscope, eyepiece, glass slide, coverslip, watch glass, hairbrush, mountain brush, blotting paper, blades etc.

Chemical: Phloroglucinol, Conc. HCl, Iodine sol. Chloralhydrate and Glycerine.

Methods:

1. Staining Method:

A thin transverse section of the sample was taken & transferred on a glass slide with help of mountain hair brush.

A drop of water was added.

Few drops of chloral hydrate and 2 drops of glycerine were added heated for two minutes.

Equal proportion of phloroglucinol and conc. HCL was added gently, warmed and allowed to cool and covered the section with coverslip avoiding air bubbles. The section was focused under microscope and arrangement of cells was studied.

The photographs of the T.S. were taken.

Method of Powder Study:

Organoleptic characters of the powder like color, odour, taste etc. were studied for microscopical characters, slides were prepared by using water, chloral hydrateas a clearing agent, stained with phloroglucinol and HCL for lignified tissues and glycerine as mounts.

RESULTS:

Snuhi

Botanical Name : *Euphorbia nerifolia* Linn.

Sanskrit Name : *Sudha, Snuhi*

Family : Euphorbiaceae

Local Name : *Thor*

Part Used : *Panchanga*

Macroscopic study of *Snuhi* (fig. 1)

Stem:

- Green, cylindrical stem with round large branches and terete, spiral ridge portion.
- Sharp stipular thorns, with hollow space in center containing white reticulate mass.
- The younger branchlets are somewhat verticillate, with two or more whorls without articulations, fleshy, cactus-like, swirled, light-green, glabrous, 8-30(-40) mm thick, often leafless, and spine shield in 5 distinct rows on more or less distinct angles (not winged) which are visible for a long time.

Stippular Thorns:

- The spines are short, about 1-4mm long.
- Grayish brown to black in color,
- Sharp, persistent, from low conical truncate distant, spirally arranged tubercles 2-5 mm height and 2-3 cm apart.

Leaves:

- Plant is leafless most of the year, except during monsoon when fresh leaves appear.
- Apex rounded, base attenuated, margins entire, hairless, oval shaped leaves, fleshy, alternate, subsessile, ovate, oblong are present towards the end of the branches.

- During vegetation period they are deciduous but in the late summer, they fall.

Microscopic study of T.S of stem

Characters Identified (Fig. 2)

A. Epidermis

B. Hypodermis

C. Cortex with parenchyma

D. Cortex having Chlorenchyma

E. Phloem

F. Xylem

G. Cambium

H. Lactiferous vessel

Microscopic study of T.S of leaves

Characters Identified (Fig. 3)

A. Lower epidermis

B. Chlorenchmatous cells

C. Xylem

D. Phloem

E. Spongy Parenchyma

F. Oil globule in spongy parenchyma

G. Lower epidermis

H. Parenchyma

I. Lower epidermis showing paracytic stomata

J. Upper epidermis showing paracytic stomata

Powder microscopy of *Snuhi* panchanga:

Light Cream coloured power was mounted on slide and analyzed microscopically for its characteristics.

Diagnostic Character of Powder :(Fig. 4)

A. Xylem vessels

B. Epidermal cells

C. Calcium oxalate crystals

D. Mesophyll of leaves

E. Broken fragment of fibres.

ANALYTICAL STUDY

Snuhi Panchanga Powder was analysed for

Organoleptic characters

Colour, Touch, Taste and Odor.

Physico-chemical parameters

1 Loss on drying at 105ºC[vi]

2 Ash value [vii]

3 Acid insoluble ash[viii].

4 Alcohol soluble extractive.[ix]

5 Water soluble extractive: [x]

Preliminary Phytochemical Screening/ Chemical tests. [xi]

Table No. 1: Organoleptic parameters of *Snuhi* powder

Parameters	*Snuhi* powder
Colour	Light Cream
Touch	Rough
Taste	Astringent and pungent
Odour	Characteristic

Table No. 2: Physico-chemical Parameters of *Snuhi Powder*

Sr. No.	Parameters	*Snuhi* Powder			
		Batch I	Batch II	Batch III	**Avg.**
1	**Loss on drying 105°C (%w/w)**	10.4	10.5	11	**10.63**
2	**Ash value (%w/w)**	10.9	9.5	10.5	**10.3**
3	**Acid insoluble Ash(%w/w)**	1	1	1.5	**1.16**
4	**W.S.E. (%w/w)**	24	29.30	28.22	**27.17**
5	**A.S.E. (%w/w)**	12.8	12	11.6	**12.13**

W.S.E.- Water soluble extractive, A.S.E. – Alcohol soluble extractive

Table No. 3: Qualitative Phytochemical parameters of *Snuhi* powder

Parameters	Results *Snuhi* Powder
Alkaloid	**Present**
Carbohydrates	**Present**
Glycosides	Absent
Amino acids	**Present**
Proteins	Absent
Tannin	Absent
Flavonoids	**Present**
Saponin	**Present**
Steroids	**Present**
Starch	Absent

CONCLUSION

The fresh *Snuhi Panchanga* was analyzed for macroscopic, microscopic and powder microscopic study and photographs were taken. The study shows characteristics features of *Euphorbia Nerifolia* Linn. as mentioned in Quality Standard of Indian Medicinal plants, Volume 11, which reveals the authentication of *Snuhi Panchanga*. Average loss on drying of *Snuhi* Powder was 10.63, Average Ash value was 10.3, Average Water soluble extractive and Alcohol soluble extractive values were 27.17 and 12.13 respectively. Alkaloid, Carbohydrates, Amino acids, Flavanoids, Saponin and Steroids were found to be present in *Snuhi Panchanga* Powder.

ACKNOWLEDGEMENT

I would like to acknowledge Post graduate department of R.S.B.K and Dravyaguna, J.S Ayurveda Mahavidyalaya Nadiad, Sundar Ayurved Pharmacy and Indukaka Ipcowala College of Pharmacy for their help during this study.

Figure No. 1.1: *Snuhi*

Figure No. 1.2: *Snuhi Panchanga powder*

Figure No. 1: Macroscopic characters of *Snuhi*

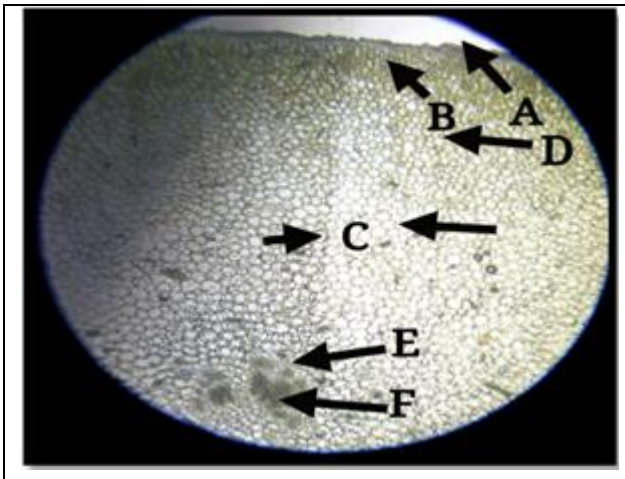

Figure No. 2.1: A -Epidermis, B -Hypodermis

C - Cortex with parenchyma

D -Cortex having Chlorenchyma

E –Phloem, F –Xylem

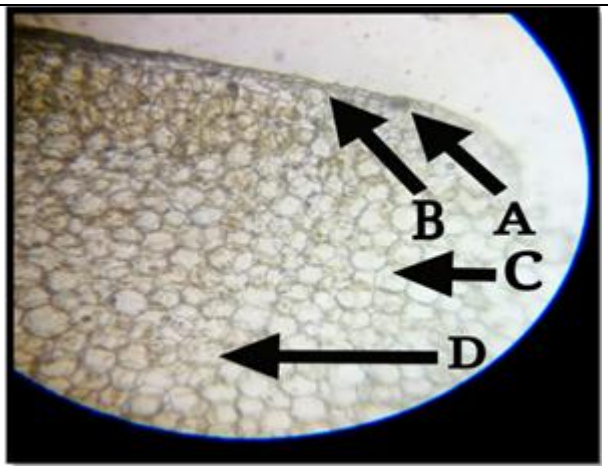

Figure No. 2.2: A –Epidermis, B -Hypodermis

C -Cortex with parenchyma

D -Cortex having Chlorenchyma

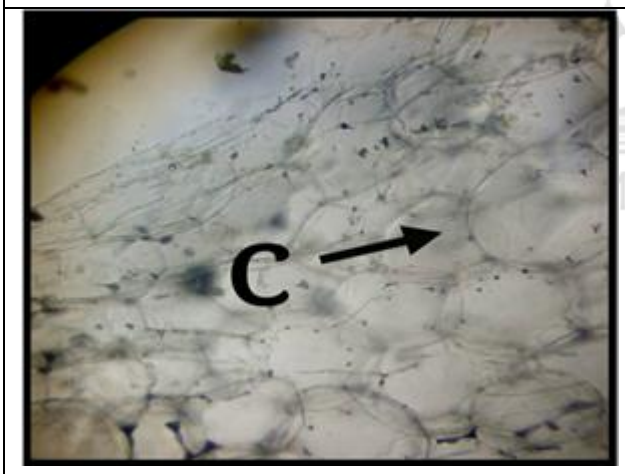

Figure No. 2.3: C -Cortex with parenchyma

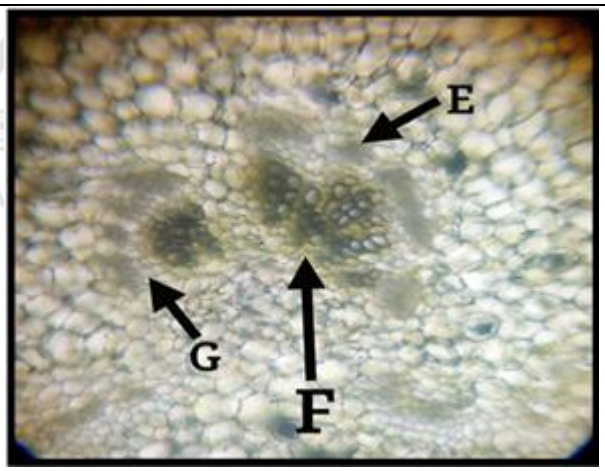

Figure No. 2.4: E –Phloem, F –Xylem, G – Cambium

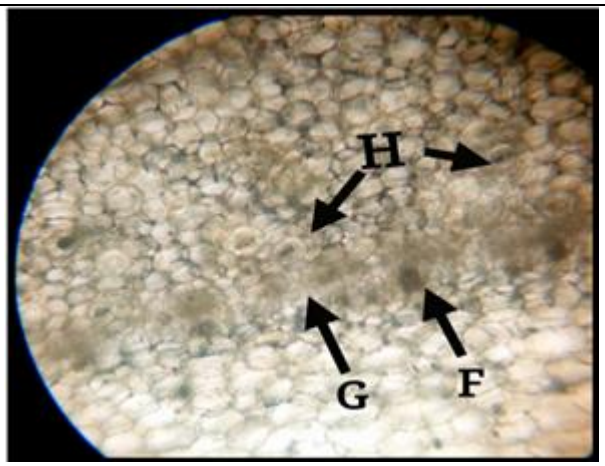

Figure No. 2.5: F–Xylem, G–Cambium,

H- Lactiferous vessel

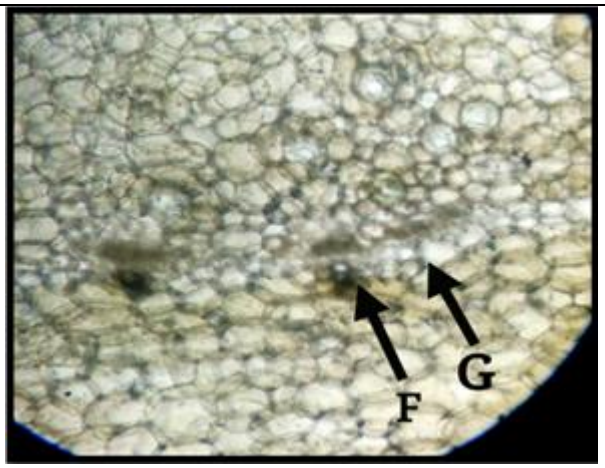

Figure No. 2.6: F –Xylem, G –Cambium

Figure No. 2: Microscopic characters of T.S of Snuhi Stem

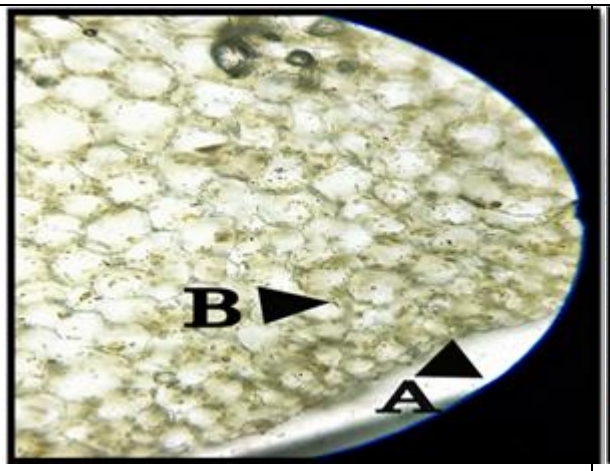

Figure No. 3.1: A – Lower Epidermis

B – Chlorenchyma cells

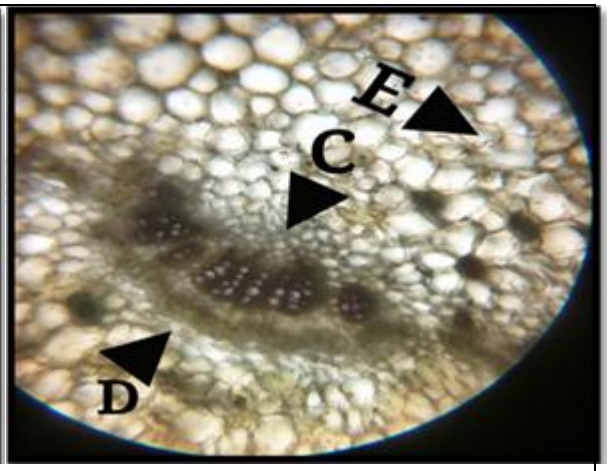

Figure No. 3.2: C –Xylem, D –Phloem

E -Spongy Parenchyma

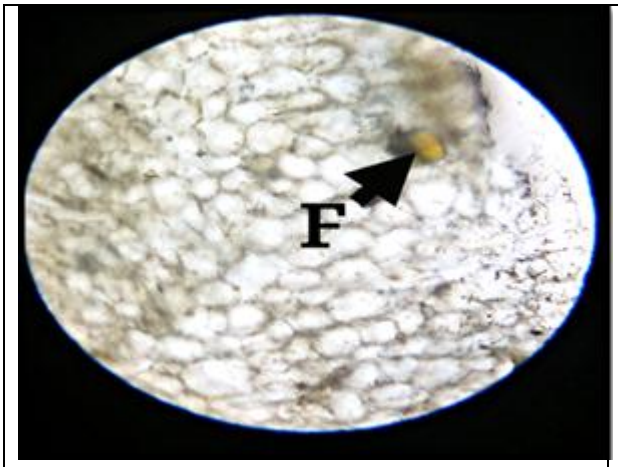

Figure No. 3.3: F–Oil globule in spongy parenchyma

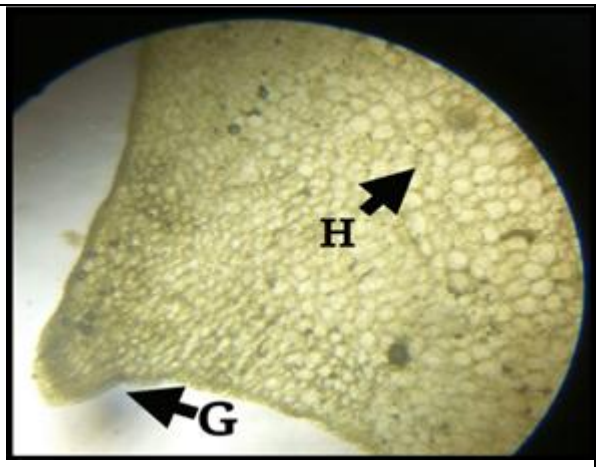

Figure No. 3.4 - G – Lower epidermis H- Parenchyma

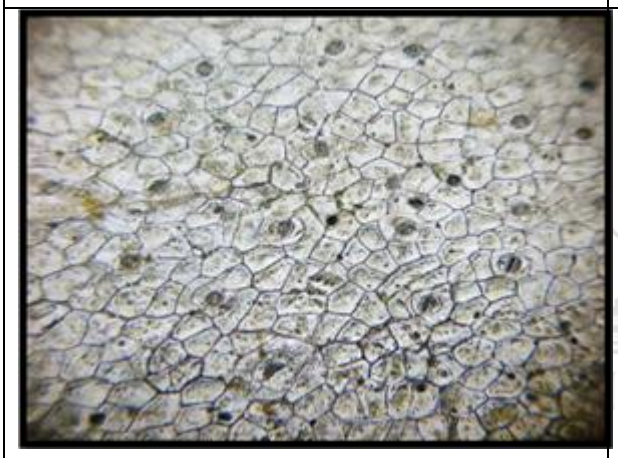

Figure No. 3.5: Lower epidermis showing paracytic stomata

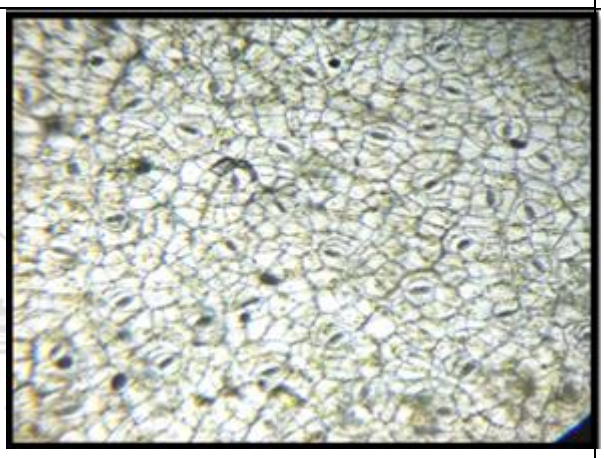

Figure No. 3.6: Upper epidermis showing paracytic stomata

Figure No. 3: Microscopic Characters of T.S of *Snuhi* leaves

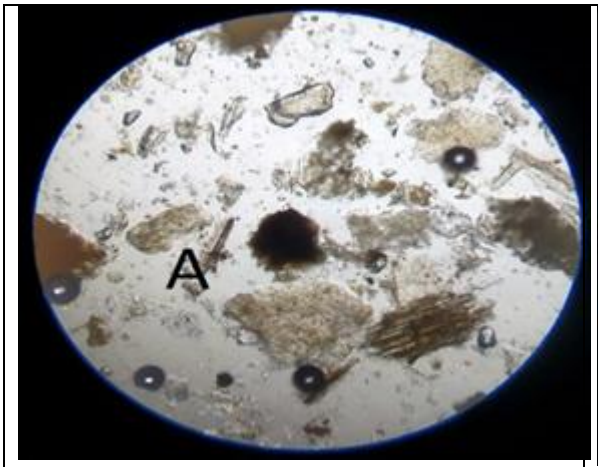

Figure No. 4.1: A - Xylem Vessels

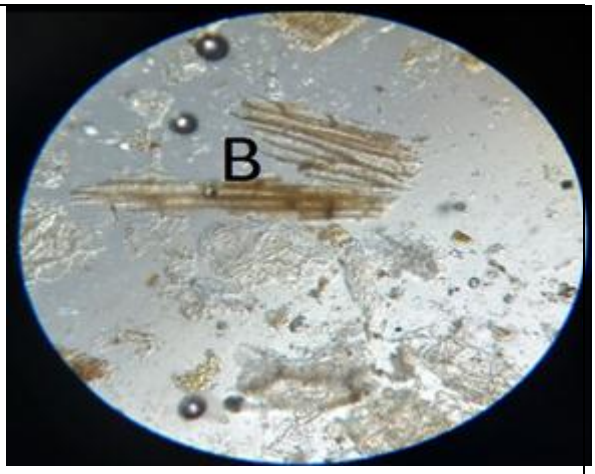

Figure No. 4.2: B- Epidermal Cells

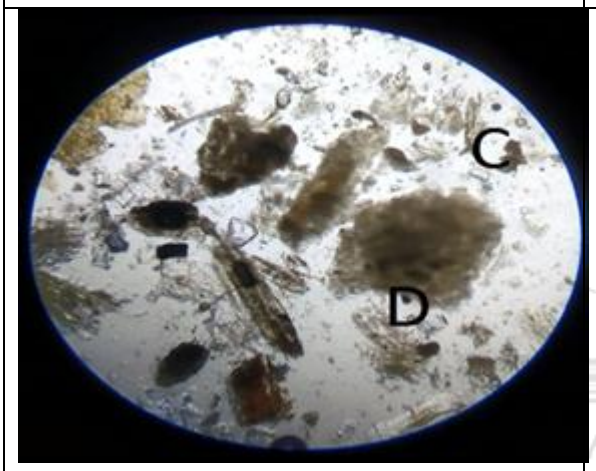

Figure No. 4.3: C- Calcium Oxalate Crystals D- Mesophyll of leaves

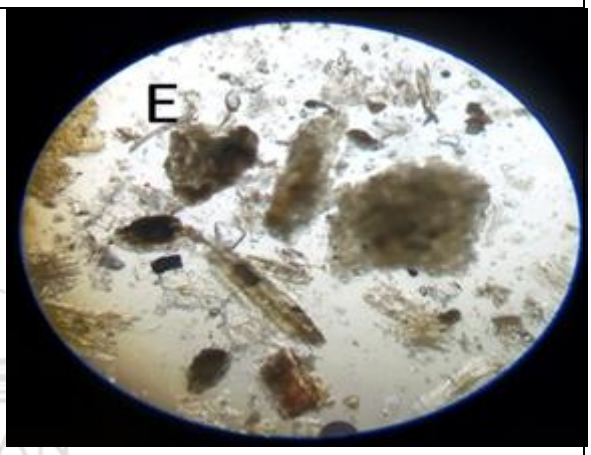

Figure No. 4.4: E – Broken Fragment of Fibers

Figure No. 4: Powder Microscopic Characters of *Snuhi*

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