WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 4, 1512-1516. Research Article ISSN 2277– 7105

PHARMACOGNOSTICAL STANDARDIZATION OF AMARANTHUS SPINOSUS LINN.ROOT

Vd. Dhara Lakkad*[1], Vd. Bharat Ramavat[2], Vd. Bhupesh Patel[3], Dr. Preeti Pandya[4], Prof. Shilpa B. Donga

[1]Assistant Professor, Department of Prasootitantra and Streeroga, Shree Swaminarayan Ayurvedic College, Kalol, Gujarat.

[2]Assistant Professor, Department of Dravyaguna, Ananya Ayurvedic College, Kalol, Gujarat.

[3]Associate Professor, Dept. of Dravyaguna, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat – 361008. India.

[4]Lab Assistant, Dept. of Dravyaguna, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat – 361008. India.

[5]Professor, Department of Prasutitantraand Streerog, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat – 361008. India.

Article Received on
14 Feb. 2020,

Revised on 05 March 2020,
Accepted on 25 March 2020

DOI: 10.20959/wjpr20204-17184

***Corresponding Author**
Vd. Dhara Lakkad
Assistant Professor, Department of Prasootitantra and Streeroga, Shree Swaminarayan Ayurvedic College, Kalol, Gujarat.

ABSTRACT

Introduction: Some plants are not found in the classical text, but they are used in the tribal area for medicinal purpose in various diseases and all the plants covered under the folklore medicinal plants. *A. spinosus* is commonly known as spiny amaranth or Pig weed, is an annual or perennial herb. The root of this plant used in Bronchitis, Asthma , Skin diseases[1], leucorrhoea, gonorrhea, leprosy, menorrhagia eczema. **Aim:** To carry out detailed Pharmacognostical and Phytochemical analysis of Root of *Amaranthus Spinosus* Linn. **Materials and Methods:** Fresh roots were collected from the natural habitat of the surrounding area of Jamnagar, in the month of July, 2017 as per *Ayurvedic* criteria for collecting the plant parts. **Result:** A detailed TS of Root shows, outer cork appearing as thin 2-3 layers of brownish strip; Ground tissue parenchymatous peculiarly showing anomalous secondary growth. **Conclusion:** Drug taken was identified as *Amaranthus spinosus* Linn. with its typical morphological character like axillary spines while microscopically deposition of the sandy crystals, pitted vessels, Fibers & cork cells.

KEYWORDS: *Amaranthus Spinosus* Linn, folklore, Organoleptic, Pharmacognosy.

INTRODUCTION

Some plants are not found in the classical text, but they are used in the tribal area for medicinal purpose in various diseases and all the plants covered under the folklore medicinal plants. *Amaranthus spinosus*[2,3] *Linn* is a 25-60cm erect or diffuse glabrous herb, stem terete, branched; leaves alternate, ovate rhomboid; flower monoecious, numerous, incomplete; fruit ovoid; seed dark-brown[4] ,smooth found in tropical and sub tropical region of India. The root of this plant used in Bronchitis, Asthma, Skin diseases[5], leucorrhoea, gonorrhea, leprosy, menorrhagia eczema. "amara" means bitter and " spinosus" means spiny. *A. spinosus* is commonly known as spiny amaranth or Pig weed, is an annual or perennial herb. On searching with different references it is found that no scientific work has been carried out yet on *the root of Amaranthus spinosus* Linn. The pharmacognostical characters of its root, is not reported yet So, the present study deals with the detailed pharmacognostical characters of the same.

MATERIALS AND METHODS

Collection and authentification

Fresh roots were collected from the natural habitat of the surrounding area of Jamnagar, in the month of July, 2017 as per *Ayurvedic* criteria for collecting the plant parts. Proper identification and authentication was done with the help of different florosand other standard references. Fresh collected plant is preserved in a glass jar containing formalin: glacial acetic acid: alcohol (1: 1: 18).

Pharmacognostic studies

Morphological characters were studied by observing the root as such and also with the help of the dissecting microscope. For detailed microscopical observation, free hand thin transverse section passing through the midrib were taken, and cleared with chloral hydrate and observed as such for the presence of any crystals, then were stained with Phloroglucinol and Hydrochloric acid to notice the lignified elements like fibers, vessels etc. Photographs of the section were also taken. Powder characters were observed and histochemical tests carried out, as per the guidelines of *Ayurvedic* Pharmacopoeia of India.

RESULT AND OBSERVATION

- Morphology: Colour: Inner & Outer – Creamish white, Odour: Sweetish, Taste: Sweetish bitter, shape: Cylindrical, Tap root system with many wiry rootlets, Size: 9cm*0.2cm, Touch: Smooth, soft

Microscopic description

T. S. of root: A Diagrammatic TS of Root Shows outer most Strip of cork followed by wide cortex and discontinuous ring of vascular strands in form of patches in parenchymatous ground tissue.

A detailed TS of Root shows, outer cork appearing as thin 2-3 layers of brownish strip; Ground tissue parenchymatous peculiarly showing anomalous secondary growth. Discontinuation ring of vascular strands and also centrally located vascular bundles with multi Seriated medullary rays; cortical region wide, parenchymatous. Collateral vascular bundles made up of phloem and xylem with parenchyma, vessels and fibers . Deposition of sandy crystal found throughout the cortical parenchyma**.**

Table no. 1: Histochemical test.

Reagent	Observation	Characteristics
Phloroglucinol + Concentrated HCL	Pink colour	Lignin present
Concentrated HCL	dissoved	Crystals present
$Fecl_3$	Black colour	Tannin present

Powder microscopy

Organoleptic evaluation of Roots of *Amaranthus spinosus Linn* revealed its yellowish cream colour, no characteristic odour and slightly bitter taste.

Diagnostic characters of the Root powder were presence of Pitted vessels, Fibers, Cork Cells in Surface view, Fragment Corticle parenchyma cells, transversely cut cork cells.

Photographs

Diagrammatic view of T.S. Root

Figure 1: whole plant.

Figure 2: Root.

Figure 3: Root.

Microscopic character of Root

Figure 4: T. S. of root.

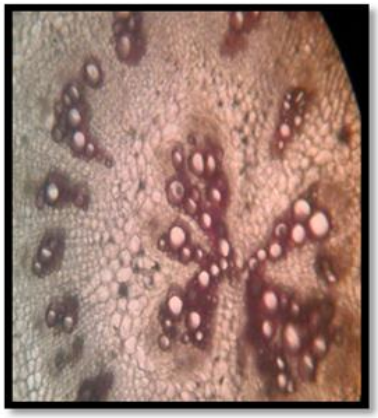

Figure 5: Medullary rays.

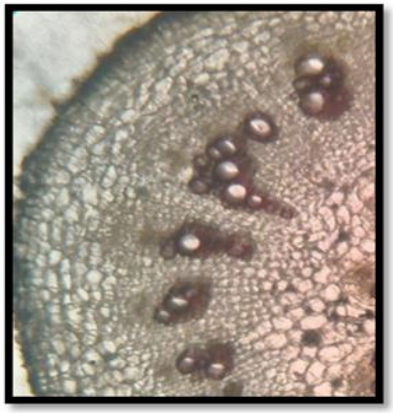

Figure 6: Cortex.

Figure 7: Xylem and phloem.

Figure 8: Cork.

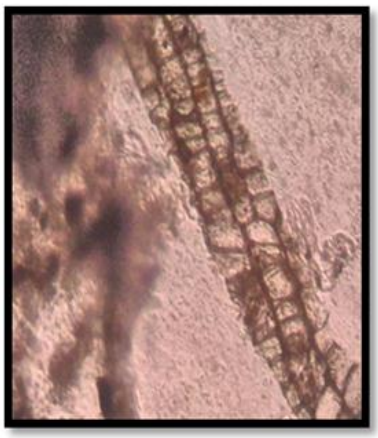

Figure 9: Surface view of cork.

Powder microscopy

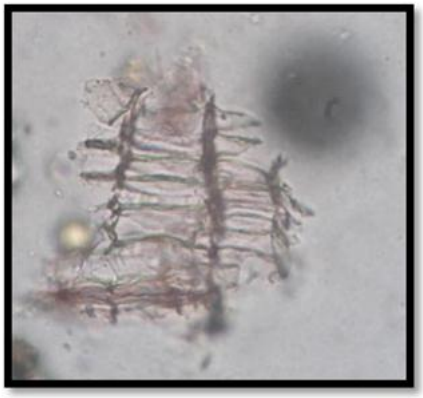

Fig. 10: cork cells in tangentially view. Fig. 11: Sandy crystals. Fig. 12: Pitted vessels.


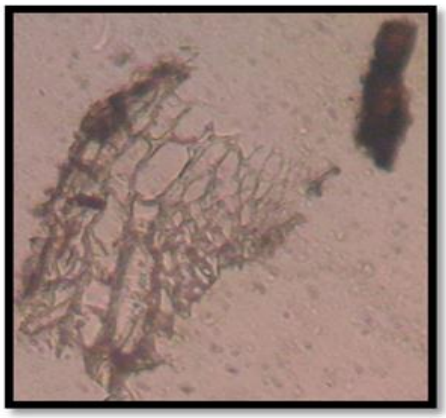

Figure 13: Lignified fiberes. **Figure 14: Corticle cells in tangential view.**

CONCLUSION

Drug taken was identified as *Amaranthus spinosus* Linn. with its typical morphological character like axillary spines while microscopically deposition of the sandy crystals, pitted vessels, Fibers & cork cells. The present study serves as identical profile for the species and helpful for further identification and authentication of the drug.

REFERENCES

1. Flora of saurashtra P.V. Bole and J.M. Pathak, 2: 237-238.
2. Flora of Gujarat state by G.L. Shah Printed by K.A. Amin, 1: 591-593.
3. Indian Ethnoveterinary Medicine an Overview by Ashok Vaidya, 201.
4. Medicinal Plant of Gujarat published by Gujarat Ecological and Research Foundation Gandhinagar, 126.
5. Flora of saurashtra P.V. Bole and J.M. Pathak, 237-238.