International Journal of
Life Sciences
International Peer Reviewed Open Access Refereed Journal

Int. J. of Life Sciences, 2024; 12 (4): 487-491
ISSN:2320-7817(p) | 2320-964X(o)

Research Article Open Access

Vessels study of some medicinal plants

Chavan ST

Rashtramata Indira Gandhi College Jalna. Maharashtra, India
Affiliated to Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar,
Email: sopanchavan6567@gmail.com

Manuscript details:

Received: 10.11.2024
Accepted: 21.12.2024
Published: 31.12.2024

Cite this article as:
Chavan ST (2024) Vessels study of some medicinal plants, *Int. J. of Life Sciences*, 12 (4): 487-491.

Available online on http://www.ijlsci.in
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)

ABSTRACT

This study aimed that to investigate the length, width, perforation, plates, pits arrangement; end-wall and lateral wall thickening types, size, diameter etc. of *Barleria cristata, Barleria prionitis* and *Crossandra infundibuliform* is through vessels study. This study also to explore the medicinal properties of some medicinal plants, focusing on their potential therapeutic effects through from plant vessels. By investigating the vessels details study of above plants, the research aims to provide valuable insights into the pharmacological aspects of medicinal plants. The findings may offer a foundation for future research in plant-based medicine and enhance our understanding of the intricate relationship between plant vascular structures and their healing properties.

Keyword: Vessels, medicinal plants, uses,

INTRODUCTION

As the demand for natural remedies and sustainable healthcare alternatives grows, investigating the vessels of medicinal plants provides a promising avenue for discovering novel therapeutic agents. This exploration not only contributes to the expanding field of phytochemistry but also fosters a deeper appreciation for the intricate interplay between plant vascular systems and their potential applications in human health. Through a comprehensive study of these vessels, we aspire to unveil the secrets that nature holds, unlocking new avenues for the development of effective and sustainable medicinal interventions.

Baarleria cristata, *Barleria prionitis* and *Crossandra infundibuliformis* are medicinal plants. 1) *Barleria cristata* L. The root and leaves used to reduce swelling (Kirtikar and Basu, 1980). The paste of fresh leaves is applied on cuts, wounds to stop bleeding (Trivedi, 2002). Root and leaves to reduce swelling, cough rheumatism, snake bite (Jayvir *et al.*, 2002). Plant used for fever, antiacidity, blood purification (Sharma 2005). Root is used in diarrhea; juice of leaves is used for eye and ear

troubles, (Shanmugam *et al*., 2009). 2) *Barleria prionitis* L: The whole plant is diuretic, tonic febrifuge and anticatarrhal. (Dastur, 1962). Cracks and lacerations of feet (Nadkarni, 1976). A root paste made of the astringent leaves and common salt is used to strengthen the gums and in toothache due to caries. (Kirtiker and Basu, 1980). Leaves against respiratory syncytial virus (Chen, *et al.*,1998). Diarrhea, Diuretic, toothache, sweet producing (Naik,1998). The decoction of the leaf is taken to nullify the effect of poison. Leaf juice mixed with honey is given to cure cough. (Maheshwary, 2000). Leaf juice used for cure Jaundice, (Das, 2002). Leaf used for Cough Dental disorders (Trivedi, 2002). Decoction of plant is given for whooping cough and toothache (Trivedi, 2002). 3) *Crossandra infundibuliformis* (L.) Nees. Plant used as ground cover, bright orange flowers are ornamental, (http.//www.Top Tropical com.). Flower applied for wounds. Plant is used for herbal medicine for the treatment of various ailments among paliyar tribes used as wounds; cuts stomach pain, diabetes, fever etc. (Shanmugam *et al*., 2002).

MATERIALS AND METHODS

Plants material was collected from Jalna district Maharashtra. Some plants of *Barleria cristata, Barleria prionitis and Crossandra infundibuliformis* was preserved in herbarium. For vessel studies a thin slice of root stem were treated with 5%solution of HNO3 +5 % solution of K2Cr2O7 for 12 to 24 hours. The maceration was then thoroughly washed with water and vessel elements were stained with 1 % aqueous solution of safranine and mounted in glycerine. Measurement was talked by ocular micrometre and camera lucida and stage micrometer. Classification of Radford *et al.* (1974) is followed for categoring the vessels element.

OBSERVATIONS

Table 1: Vessel elements in Stem.

Sr. No	Name of Species	Length of vessel members (µm)			Diameter of vessel members (µm)		
		Minimum length	Maximum length	Average	Minimum diameter	Maximum diameter	Average
1	*Barleria cristata*	260	740	500	20	110	65
2	*Barleria prionitis*	260	420	340	10	60	35
3	*Crossandra infundibuliformis*	290	760	525	60	75	65.5

Table 2: Vessel element in Root

Sr. No	Name of Species.	Length of vessel members (members (µm)			Diameter of vessel members (µm)		
		Minimum length	Maximum length	Average	Minimum diameter	Maximum diameter	Average
1	*Barleria cristata*	260	820	540	30	80	55
3	*Barleria prionitis*	450	760	605	70	120	95
3	*Crossandra infundibuliformis*	520	730	625	60	70	65

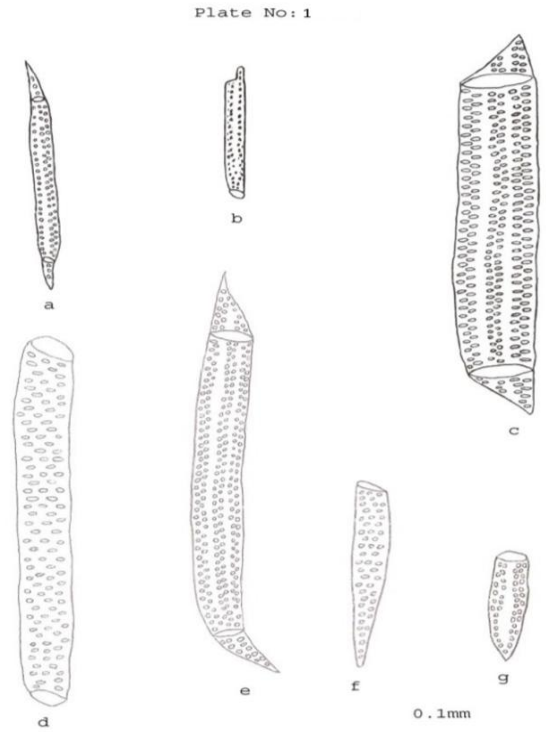

Fig:-*Barleria cristata* stem (a,b,c) and root vessels (d,e,f,g)

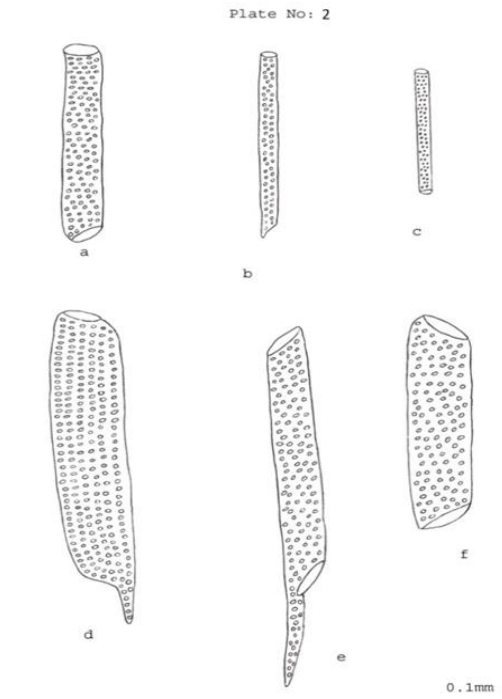

Fig:*Barleria prionitis* stem (a,b,c) vessels and root (d,e,f) vessels.

Vessel elements in *Barleria cristata* L stem.

Length of vessel elements	: 260 – 740 µ.
Average length	: 500 µ.
Diameter of vessels elements	: 20 - 110 µ.
Average diameter	: 65 µ.
Shape	: Cylindrical, tubular
Lateral wall thickening	: Simple pitted
Pits arrangement	: alternate
Perforation plate	: Simple
Shape of perforation plate	: Oval, round
Position of plate	: Oblique, transverse
Tail	: Short, blunt

(Plate No 1, Table 1)

Vessel elements in *Barleria cristata* L root.

Length of vessel elements	: 260 - 820 µ.
Average length	: 540 µ.
Diameter of vessels elements	: 30 - 80 µ.
Average diameter	: 55 µ.
Shape	:Tubular, cylindrical, column like
Lateral wall thickening	: Simple pitted
Pits arrangement	: Opposite, alternate
Perforation plate	: Simple
Shape of perforation plate	: Circular, oval
Position of plate: Oblique, lateral, transverse	
Tail	: Long pointed

(Plate No 1, Table 2)

Vessel elements in *Barleria prionitis* L stem.

Length of vessel elements	: 260 - 420 µ.
Average length	: 340 µ.
Diameter of vessels elements	: 10 - 60 µ.
Average diameter	: 35 µ.
Shape	: Tubular, cylindrical
Lateral wall thickening	: Simple pitted
Pits arrangement	: Alternate
Perforation plate	: Simple
Shape of perforation plate	: Oval, circular
Position of plate	: Lateral, transverse
Tail	: Present short

(Plate No 2, Table 1)

Vessel elements in *Barleria prionitis* L root.

Length of vessel elements	: 450 - 760 µ.
Average length	: 605 µ.
Diameter of vessels elements	: 70 - 120 µ.
Average diameter	: 145 µ.
Shape: Spindle shaped, drum shaped	
Lateral wall thickening	: Simple pitted
Pits arrangement	: Alternate, opposite
Perforation plate	: Simple
Shape of perforation plate	: Oval, circular
Position of plate	: Oblique, transverse
Tail	: Present long pointed.

(Plate No 2, Table 2)

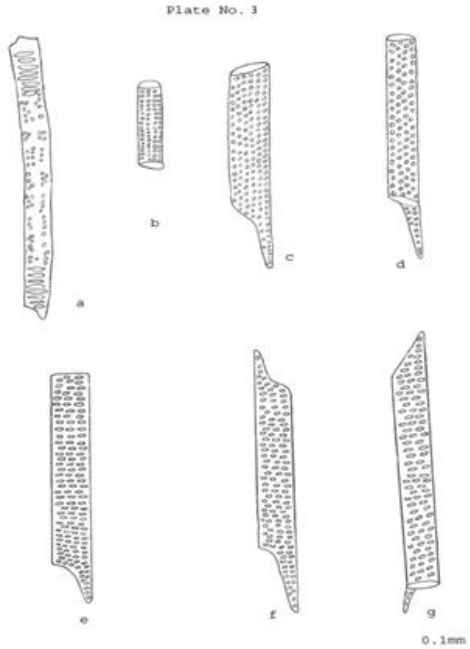

Figure: *Crossandra infundibuliformis* stem (a,b,c,d) vessels and root (e,f,g) vessels.

Vessel elements *in Crossandra infundibuliformis* (L.) Nees stem.

Length of vessel elements	: 290 - 760 µ.
Average length	: 525 µ.
Diameter of vessels elements	: 60 - 75 µ.
Average diameter	: 65.5 µ.
Shape	: Tubular
Lateral wall thickening	: Simple pitted
Pits arrangement	: Alternate, opposite
Perforation plate	: Simple
Shape of perforation plate	: Oval, circular
Position of plate	: Lateral, transverse
Tail	: Present long, pointed

(Plate No 3. Table 1)

Vessel elements in *Crossandra infundibuliformis* (L.) Nees root.

Length of vessel elements	: 520 - 730 µ.
Average length	: 625 µ.
Diameter of vessels elements	: 60 - 70 µ.
Average diameter	: 65 µ.
Shape	: Tubular
Lateral wall thickening	: Simple pitted
Pits arrangement	: Parallel, opposite
Perforation plate	: Simple
Shape of perforation plate	: Oval, circular
Position of plate	: Lateral, transverse
Tail	: Long, blunt

(Plate No. 3. Table 2)

CONCLUSION

This study delves into the intricate world of plant vessels, seeking to unravel the mysteries of their morphology, composition, and functionality within the context of medicinal properties. The significance of understanding plant vessels lies in their direct correlation to, unlocking new avenues for the development of effective and sustainable medicinal interventions avenue for discovering novel therapeutic agents. This exploration not only contributes. The production and grows, investigating the vessels of medicinal plants provides a promising to the expanding field of phytochemistry but also fosters a deeper appreciation for the intricate interplay between plant vascular systems and their potential applications in human health. Through a comprehensive study of these vessels, we aspire to unveil the secrets that nature holds

Conflict of Interest: The authors declare no conflict of interest in relation to this research.

Data Availability Statement: Not applicable.

Correspondence and requests for materials should be addressed to **Chavan ST**

Peer review information
IJLSCI thanks the anonymous reviewers for their contribution to the peer review of this work. A peer review file is available.

Reprints and permissions information is available at https://www.ijlsci.in/reprints

REFERENCES

Bhogankar PY and Lande SK (2005) Anatomical characrizationof Lepidagathis Cristata. Willd. – Ethnomedicinal herb. "Journal of Biosciences ISSN: 2320 – 1355, Vol. 4. 3-15.11

Chen JL, Blancp; Stoddart CA. Boganm; Rozhan EJ. (1998) "Journal of Natural products"(10) 1295 – 1297.

Dastur JFNI (1962) "Medicinal plants of India and Pakistan" 2nd edition" D. B. Taraporevala sons and comp.

http // www.Top.

Jayvir Anjaria, Minoo parabia, Gauri Bhatt and Ripal Khamar., (2002) "A Glossary of selected Indigenous Medicinal plants of India" 2nd edition, "Sristi Innovations Ahmedabad.

Kirtikar and Basu (1980) Indian medicinal plants" Sayed printer, Delhi, Vol. I-IV.

Maheshwari JK (2000) "Ethnobotany and medicinal plants of Indian subcontinent, Jodhpur scientific publishers.

Nadkarni MK (1976) (Reprint ed. 2002) "Indian Materia Neesa" Vol. I. Popular Prakashan, Bombay, India. pp. 1252-1253.

Naik VN (1998) "Marathwadyatil Samanya Vanaushadhi", Amrut Prakashan, Aurangabad, (M.S.) India.

Prakash and Gupta (2005) Therapeutic uses of Ocimum sanctum Linn. (Tulsi) With anote on eugenol and its pharmacological actions; a short review Indian J. of Physiological phamacol. 49 (2); 125-131.

Shanmugam S, Gayatri N, Sakthivel B, Ramar S and Rajendran K (2009) Plants used as medicine by Paliyar Tribes of Shenbagathope in Virudhunagar district, of Tamilnadu India" Ethnobotanical leaflets 13:370-378.

Sharma PV (2005) V Ayurveda Series 3, Dravyaguna-Vijnana Vol. II, Academy publishers and Distributors Varanasi.

Trivedi PC (2002) TS Roopashree, Dang Raman, R. H. Rani Shobha, C. Narendra, (2008) Standardization, Phytochemical and Pharmacological Evalution of *Cassia tora* seed extract, Studii si cecetari Biologie, University, area din Bacau Ethnobotany. The Diamond printing press Jaipur.