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STUDY OF TRICHOMES IN SOME SPECIES OF *LITSAEA* LAMK.

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ABSTRACT

Litsaea Lamk. belongs to the family Lauraceae which is economically important for aromatic oils. These oils are responsible for the fragrance of many of its members. This family is also called as the avocado family. The members of the genus *Litsaea* are also medicinally important. The bark of *Litsaea sebifera* is mixed with goats milk and serves as an application for sprains and bruises. The infusion of bark is used in dysentery. Wood is durable and not attacked by insects. The bark of *Litsaea polyantha* is used in Indian medicine. Muga silkworms are reared on its leaves. The forked stems of sufficent dimensions of *Litsaea angustifolia* are used for single yoke for buffaloes. Pat silkworms (Assam silk) are reared on the leaves of *L. citrata*. In this study the trichomes of 17 species of the genus *Litsaea* are studied. The structure and development of trichomes and glands have been studied in several angiosperm families. The trichomes observed in genus *Litsaea* are eglandular, unicellular, glandular & multicellular peltate type.

KEY WORDS: *Litsaea*, Lauraceae, trichomes, eglandular, unicellular, glandular & multicellular peltate.

INTRODUCTION

The present work deals with the anatomical studies in the genus *Litsaea*. The family Lauraceae is commonly called Laurel family as suggested by Hooker, 1883. There is meagre anatomical work carried out in Genus *Litsaea* of Lauraceae. Economically the family is important for the aromatic oils that are responsible for the fragrance of many of its members the avocado (*Persea americana*), Cinnamon and camphor (*Cinnamomum*), benzoin (*Lindera*), Sassafras (*Sassafras*), and many fragrant woods used in cabinet work. Avacado

growing is a major fruit industry in Southern U.S.A. Species of about 7 genera are cultivated domestically for ornamentation. as mentioned by Kanjilal, 1939.

The structure and development of trichomes and glands have been studied in several angiosperm families by De Bary, 1884; Netolitzky, 1932; Cowan, 1950; Goodspeed, 1958; Inamdar, 1967, 1968; Inamdar and Patel, 1971 & Lowell and Lucansky, 1986. Aleykutty and Inamdar (1980) studied trichome complex of Lauraceae.

MATERIAL AND METHODS

The species studied are as shown in the table

Sr.No.	Genus species	Place of Collection
1	*Litsaea chartacea* Wall.	B.S.I. Eastern Circle, Shillong, 30111, 30113.
2	*Litsaea citrata* Blume.	Shillong B.S.I. Eastern Circle, Shillong, 17818, 27861.
3	*Litsaea coriacea* Hook. f.	Mahableshwar, Bhimashankar.
4	*Litsaea cubeba* Pers.	K&J Hills B.S.I. Eastern Circle, Shillong, 47279, 47280.
5	*Litsaea elongata* Wall.	Mawsmai,K&J Hills B.S.I. Eastern Circle, Shillong, 24926, 24930, 24933
6	*Litsaea glutinosa* C.B.Robins.	Kolli Hills.
7	*Litsaea Khasyana* Meissn.	K&J Hills 24957, 24964, 24965.
8	*Litsaea oblonga* Wall.	Tirap (Eastern Nepal) B.S.I. Eastern Circle Shillong, 30933, 27860, 17875.
9	*Litsaea oleoides* Hook.f.	Kolli Hills.
10	*Litsaea Panamonja* Ham.	Tirap (Eastern Nepal) B.S.I. Eastern Circle, Shillong, 17844, 25176
11	*Litsaea polyantha* Juss.	Dehradun B.S.I. Eastern Circle, Shillong, 38377, 38379, 24896.
12	*Litsaea salicifolia* Roxb.	Mawsmai, K&J Hills B.S.I. Eastern Circle, Shillong, 25014, 25016, 25029, 24999, 2502.
13	*Litsaea sebifera* Pers.	***Umsaw B.S.I. Eastern Circle, Shillong, 24802, 24820, 24822, 24830.***
14	*Litsaea semecarpifolia* Wall**.**	Mawsmai,Assam Hills B.S.I. Eastern Circle, Shillong 24916, 24968, 42445.
15	*Litsaea stocksii* Hook.f.	Koina, Mahableshwar, Castle Rock, A.R.I. Pune 6912, 6913, 6914, 6915.
16	*Litsaea umbrosa* Nees.	K&J Hills B.S.I. Eastern Circle, Shillong, 25176, 47292.
17	*Litsaea Wightiana* Hook.f.	KodaiKanal

The plant material for the present work was personally collected from Shillong- Meghalaya; Kodaikanal, Kolli Hills-Tamilnadu. The duplicates of herbarium were collected from the

herbarium section of B.S.I. Eastern Circle and A.R.I., Pune.The identification of fresh material was checked with the help of Standard Herbaria from B.S.I. Shillong and B.S.I. Yercaud and A.R.I. Herbarium, Pune.

The lamina was boiled in nitric acid and upper and lower epidermal peelings were taken. The peelings were washed in water and stained with Saffranine or Haematoxylin and mounted in glycerine. Foliar trichomes were observed from the cleared surface of the lamina under the compound microscope. Trichomes were sketched by using Erma Camera Lucida at 10 x 45 magnification.

The terminology used in anatomical studies for trichomes classification is in accordance with Inamdar and Patel (1973).

OBSERVATIONS

1. *Litsaea chartacea:* (Text Fig. 1)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

2. *Litsaea citrata:* (Text Fig. 2)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

3. *Litsaea coriacea:* (Text Fig. 3)

Trichomes are eglandular, unicellular type, conical with an acute apex. The outer walls are slightly concave.

4. *Litsaea cubeba:* (Text Fig. 4)

Trichomes are eglandular, unicellular type, conical with an acute apex. The outer walls are concave.

5. *Litsaea elongata:* (Text Fig. 5)

The trichomes are glandular, multicellular peltate type.

6. *Litsaea glutinosa:* (Text Fig. 6)

Trichomes are eglandular, unicellular type, conical with an acute apex. The outer walls are wavy.

7. *Litsaea Khasyana:* (Text Fig. 7)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

8. *Litsaea oblonga:* (Text Fig. 8)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

9. *Litsaea oleoides:* (Text Fig. 9)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

10. *Litsaea Panamonja:* (Text Fig. 10)Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

11. *Litsaea polyantha:* (Text Fig. 11)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

12. *Litsaea salicifolia:* (Text Fig. 12)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are concave.

13. *Litsaea sebifera:* (Text Fig. 13)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

14. *Litsaea semecarpifolia:* (Text Fig. 14)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

15. *Litsaea stocksii:* (Text Fig. 15)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

16. *Litsaea* umbrosa: (Text Fig. 16)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

17. *Litsaea Wightiana:* (Text Fig. 17)

Trichomes are eglandular, unicellular type, conical with an obtuse apex. The outer walls are slightly concave.

RESULT AND DISCUSSION

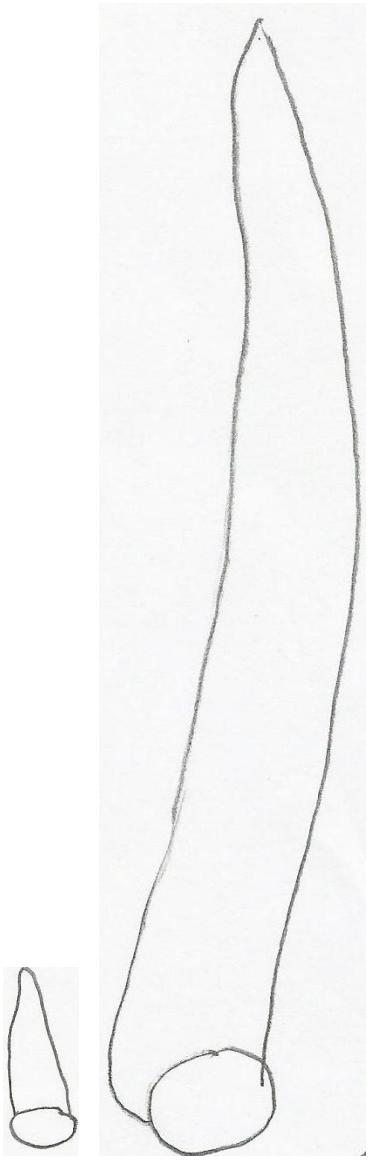
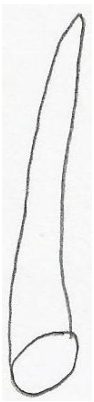


Fig. 1.

Fig. 2.



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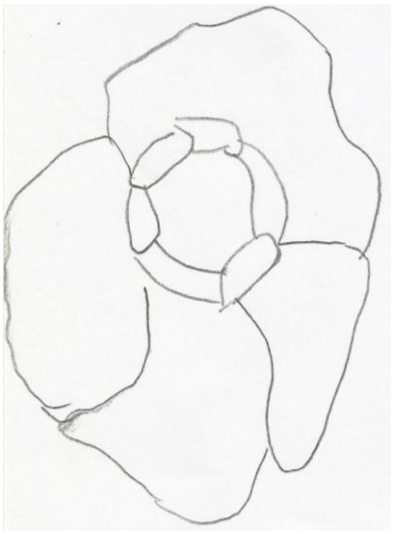

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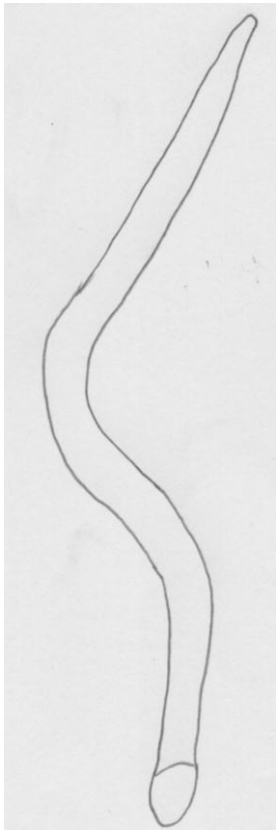

Fig. 6.

Fig. 7.

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Fig. 11.

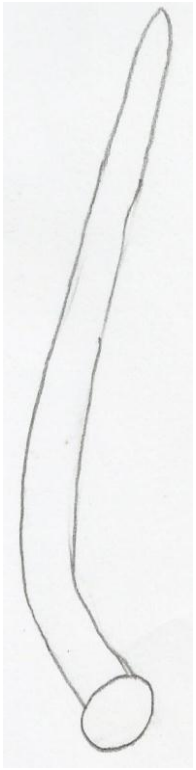

Fig. 12.

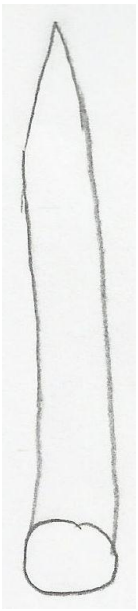

Fig. 13.

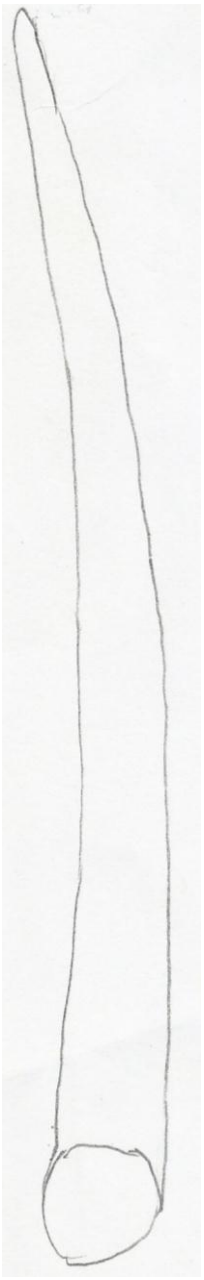

Fig. 14.

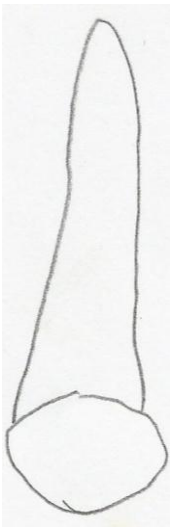

Fig. 15.

Fig. 16.

Fig. 17.

RESULT AND DISCUSSION

Trichomes of all the studied species were examined. The trichomes observed in genus *Litsaea* are eglandular, unicellular, mostly conical with an acute apex in *Litsaea cubeba, L. coriacea, L. glutinosa*; while obtuse apex is observed in *L. chartacea, L. citrata, L. Khasyana, L. oblonga, L. oleoides, L. Panamonja, L. polyantha, L. salicifolia, L. sebifera, L. semecarpifolia, L. stocksii, L. umbrosa* and *L. Wightiana* and glandular, multicellular peltate type is observed in *L. elongata.*

In Lauraceae all trichomes thus far reported in the literature or observed by the authors (Christophel et al., 1996) have been simple as in *Litsaea costalis.* Generally their bases can be characterized as poral meaning they consist not of a set of specially modified cells, but of a pore or hole, at the junction of several non-stomatal cells. Some Lauraceae also display glandular cells. The observations made on the studied species of *Litsaea* which are eglandular, unicellular, conical and glandular, multicellular only in *L. elongata.*

Since Vaidya 2015 has already studied the venation patterns in some of the species & stomatal complexes also have been studies by Vaidya 2016,the studies on trichome complex was undertaken even though it is not much significant taxonomically for the seperation of the species. However eglandular unicellular, conical becomes a significant character with rarely glandular, multicellular peltate type.

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