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Aim :-

To perform the microscopic study of clove.

Reference :-

Kokate C. K., Purohit A.P. and Gokhale S.B., Nirali Publication, 56th Edition, Page no - 14.85 - 14.87.

Requirement :-

- Glassware :-
  - Slide
  - Coverslip
  - Watch glass
- Chemicals :-
  - Glycerine
  - Safranine reagent.
  -
- Watery dipped clove.
- Sharp blade.
- Microscope.
- Pen Brush.

Theory :-

Clove tree is a native of Indonesia. It is also found in Madagascar, Penang, Mauritius, West Indies, India and ceylon.

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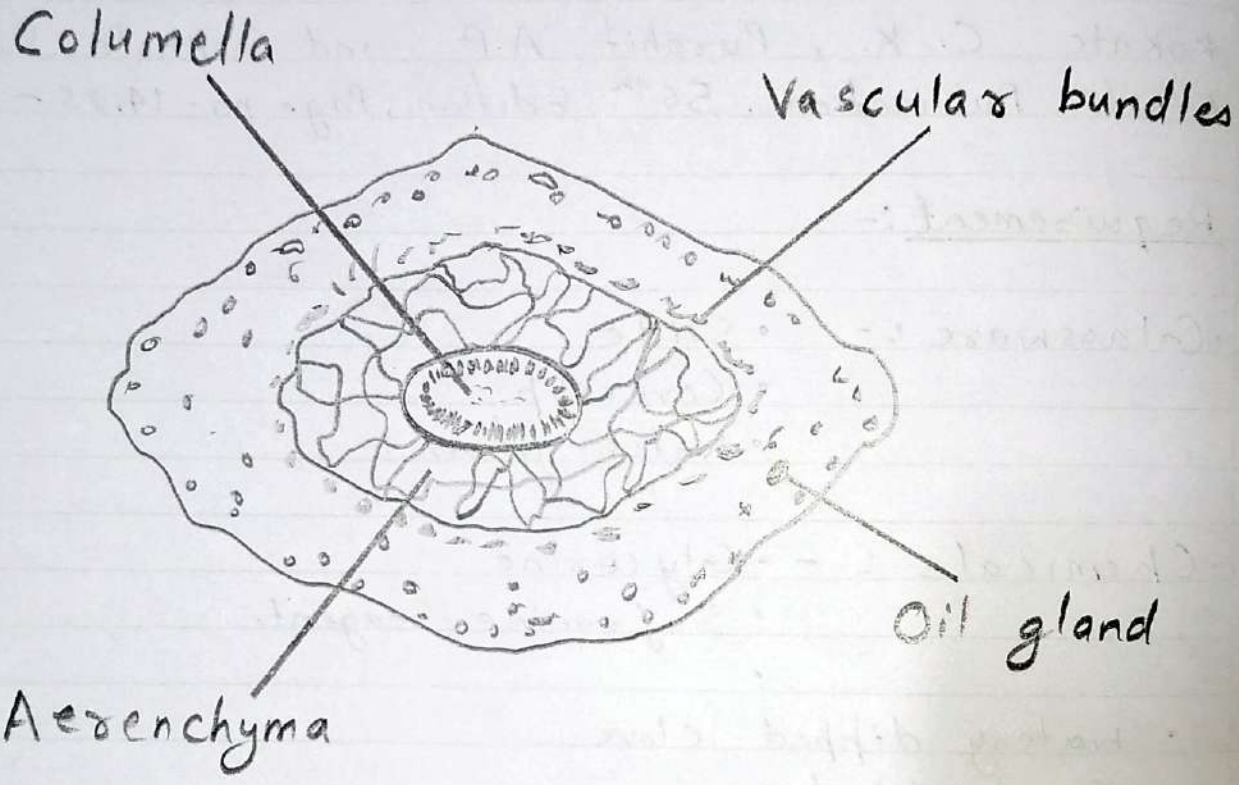

Columella
Vascular bundles
Oil gland
Aerenchyma

Clove tree is evergreen and 10 to 20 m in height. The plant requires moist, warm and equable climate with well-distributed rainfall. It is propagated by means of seeds.

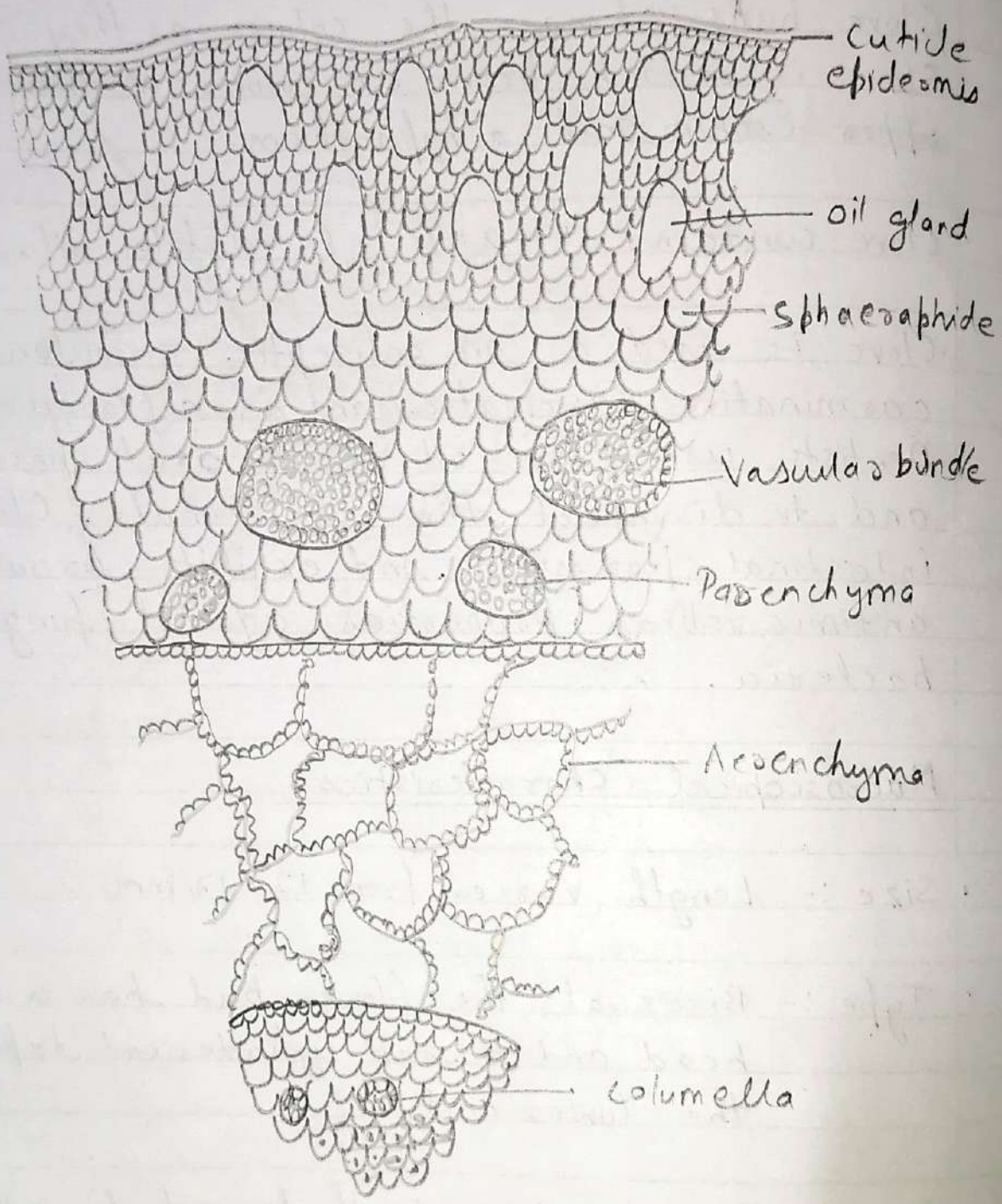
Clove buds change the colour as they mature. Clove is reddish brown in colour ~~as they~~ with an upper crown and a hypanthium.

Clove contains 14-21% of volatile oil.

Clove is used as an antiseptic, stimulant, carminative, aromatic and as a flavouring agent. Dentists use clove oil as an oral anesthetic and to disinfect the root canals. Clove kills intestinal parasites and exhibits broad antimicrobial properties against fungi and bacteria.

Macroscopical Characteristics :-

- Size :- Length varies from 12 - 17 mm.
- Type :- Bisexual, the flower bud has a spherical head and a sub-cylinderical tapering at the lower end.
- Calyx :- Four hard and thick sepals with wire grains.



Lateral Section of Clove.

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- Style :- Single and erect.
- Colour :- Dark brown.
- Corolla :- Four petals.
- Odour :- Aromatic, spicy and strong.
- Taste :- Pungent, aromatic.

Procedure :-

- Take a clove which was dipped in water for over night, or boiled at normal temperature for about 30 minutes so that the clove may become soft and then easy to cutting.
- After dipping the clove select 2-3 good pieces of clove and place it on the watch glass.
- Then take a new and sharp blade and cutting the starting and end part of the clove.
- Cutting a thin section of clove and dipped into watch glass containing plain water.

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- Transfer the section into the watch glass containing safranine reagent and allow it to stand for about 2-3 minute.
- Again transfer it into another watch glass containing plain water to clean the excess of stain.
- Now place the section on the glass slide and add 2-3 drop of glycerine to prevent drying of the section.
- Now cover the slide with a coverslip and observe under the microscope with 10x optical and 10x objective lens.
- Draw the diagram that are observed under the microscope.

Result:

The microscopic study of clove successfully performed.

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