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Diploma in Pharmacy 1st Year
Pharmacognosy
Experiment

To perform the physical and chemical tests of Pale catechu.

Aim:

To perform the physical and chemical tests of Pale catechu.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , "Practical Manual of Pharmacognosy" Published by Nirali Prakashan , Pg.No 120 - 124

Biological Source :

Pale catechu is an extract prepared from the leaves and young shoots of plant Uncaria gambier Roxburgh. It belongs to family Rubiaceae, belonging to family Rubiaceae.

Materials and Apparatus Required

Test tube, conical flask, beaker, water bath, matchstick, burner, sodium hydroxide solution, light petroleum, chloroform, concentrated hydrochloric acid, vanillin, and alcohol.

Theory

Pale catechu is an extract occurring as dark or pale-brown coloured cubes having a dull, powdery fracture. It may also occur in the form of lozenges.

Physical Tests

1) **Form:** Gambier occurs in the form of regular cubes (measuring 2-3cm on each side), in masses of adherent cubes and sometimes in larger rectangular blocks (4cm long), or in irregular broken pieces.

2) **Colour:** Dark reddish-brown colour.

3) **Odour:** Odourless.

4) **Taste:** First bitter and astringent, but afterwards sweetish.

5) **Surface:** Dull.

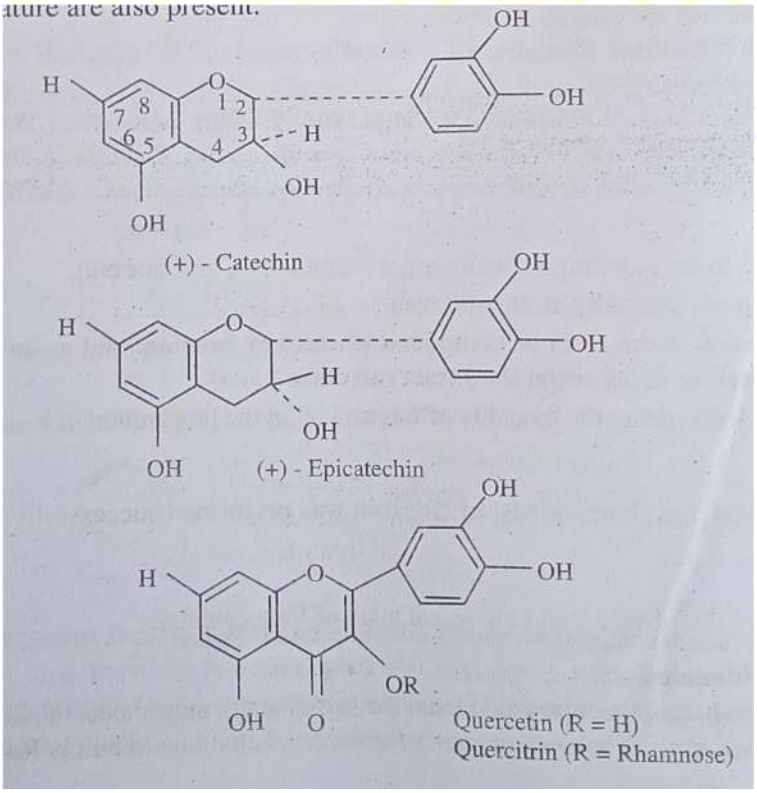
6) **Fracture:** Brittle.

7) **Chemical:** Constituen.

Chemical Constituents

Pale catechu contains about 7.33% (+) catechin and 22- 50% catechu tannic acid. These two substances in varying proportions constitute together over 60% of the drug

Catechu tannic acid gives a green colour with ferric chloride solution, indicating a phlobatannin. Brown substance, rubeanic and japonic acids, of unknown chemical nature are also present.



Other constituents of the drug are catechu-red, quercetin, and gambler Fluorescein (a fluorescent substance)

Chemical Tests

Sr. No.	Tests	Observations	Inferences
1)	**Gambier Fluorescent Test:** A little powdered drug is boiled with alcohol, filtered, and sodium hydroxide solution is added to the filtrate, stirred, and a few ml of light petroleum is added.	Petroleum layer shows green fluorescence.	Due to the presence of fluorescence constituent.
2)	**Chlorophyll Test:** The powdered drug is boiled with 5ml chloroform on a water bath, filtered in a white porcelain dish, and evaporated in a water bath.	A greenish yellow residue is obtained.	Due to the presence of chlorophyll; chlorophyll is absent in black catechu, thus this test is negative.
3)	**Matchstick Test:** A matchstick is dipped in decoction of pale catechu, dried in air, dipped in concentrated hydrochloric acid, and warmed near the burner.	Magenta or purple colour is produced.	By the action of hydrochloric acid on catechins or catechol tannins, phloroglucinol is produced which with lignin of the matchstick respond positively to the test.
4)	**Vanillin Hydrochloric Acid Test:** The drug is treated with vanillin hydrochloric acid reagent, which is a mixture of vanillin (1gm), alcohol (10ml), and concentrated hydrochloric acid (10ml).	Pink or red colour is formed.	Due to the formation of phloroglucinol.

Uses

1) Medicinal Uses:

i) All parts of the plant have astringent properties.

ii) In India, gambier is used as skin lotions since remote times.

iii) The Malays (ancient Malaysia) also use gambier as a lotion and apply it to treat burns.

iv) In paste form, it is used to treat scurf.

v) It has commonly been used by the Indians and Malays to treat diarrhoea and dysentery, and as a gargle for sore throat.

vi) In Borneo, it has been used in the treatment of sciatica and lumbago.

2) Other Uses:

i) Gambier catechu yields a colour known as Cutch Brown, which is used for dyeing and tanning cotton, wool and silk.

ii) It is also used on leather, such as calf and kip skins. The common khaki colour is obtained from it.

Result :

The physical and chemical test of Pale catechu was performed successfully.

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