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Chemical Identification of Asafoetida Catechu and Aloe

Experiment 3 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To compare oleo-gum-resin, tannin-rich material and dried aloe latex using class-supporting tests.

Principle

Asafoetida contains gum, resin and volatile components. Catechu is rich in polyphenolic tannins. Dried aloe latex contains hydroxyanthracene derivatives; it is different from the clear inner-leaf gel.

Requirements

- Authenticated asafoetida, catechu and dried aloe latex.
- Water, prescribed extracts, prepared ferric-chloride/gelatin reagents and instructor-pretreated aloe extract.

Procedure

1. Record source

Identify the exact drug part and extract used. Confirm that the aloe teaching material is dried latex, rather than a cosmetic gel product.

2. Asafoetida dispersion

Triturate the assigned portion with water and observe the milky dispersion/emulsion. Record insoluble residue and compare with authentic material.

3. Asafoetida resin study

Observe the prescribed prepared resin extract or staff-demonstrated coumarin-related fluorescence reaction. Treat this as supporting evidence; extraction and pretreatment affect the result.

4. Catechu

Apply ferric chloride to a suitable aqueous extract and gelatin to a separate portion. Record colour and precipitation alongside reagent and known-tannin controls.

5. Aloe

Use the instructor-pretreated extract for the modified Borntrager branch where the prescribed method requires oxidation of anthrone-type components. Observe the alkaline-layer pink/red response and identify the layer.

6. Interpret

List the combined evidence for each drug. A phenolic response can occur in many plant extracts and does not establish identity by itself.

Pharmacognosy and Phytochemistry**Observations and Record**

Material	Supporting pattern	Observed response
Asafoetida	Milky water dispersion; resin-related study	_____
Catechu	Tannin colour and protein-precipitation reactions	_____
Aloe dried latex	Prescribed hydroxyanthracene reaction	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Two extracts both reacting with ferric chloride are not thereby the same drug. Check source, physical behaviour and a second appropriate class test.

Result

Record the observed outcome and calculated value, with units. State whether the stated laboratory specification was met; do not copy the worked example as your result.

Precautions

- Use authenticated, labelled teaching material and instructor-prepared reagents. Wear the protection specified for the chemical method.
- Compare with a known control and record actual observations. A single colour, precipitate or odour description cannot authenticate a crude drug.
- Do not taste botanical material or directly inhale vapours; dispose of solvents and staining reagents in their assigned waste containers.
- Extract pretreatment and volatile-solvent work are performed in the assigned hood; do not substitute an untreated extract into a modified test.

Viva Questions and Answers**1. Is aloe gel the same as dried aloe latex?**

No. They come from different leaf tissues and differ in composition.

2. Why use gelatin in a tannin study?

Suitable tannins can precipitate proteins.

3. Why specify modified Borntrager pretreatment?

Some anthrone-related material needs the prescribed conversion before a useful reaction is observed.

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