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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.

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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