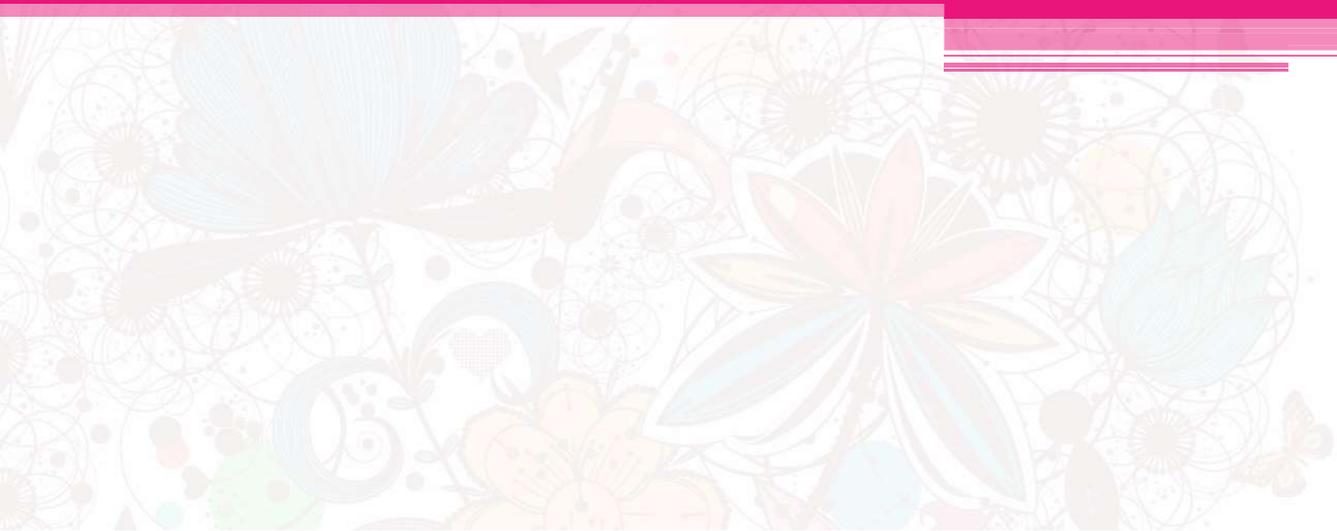
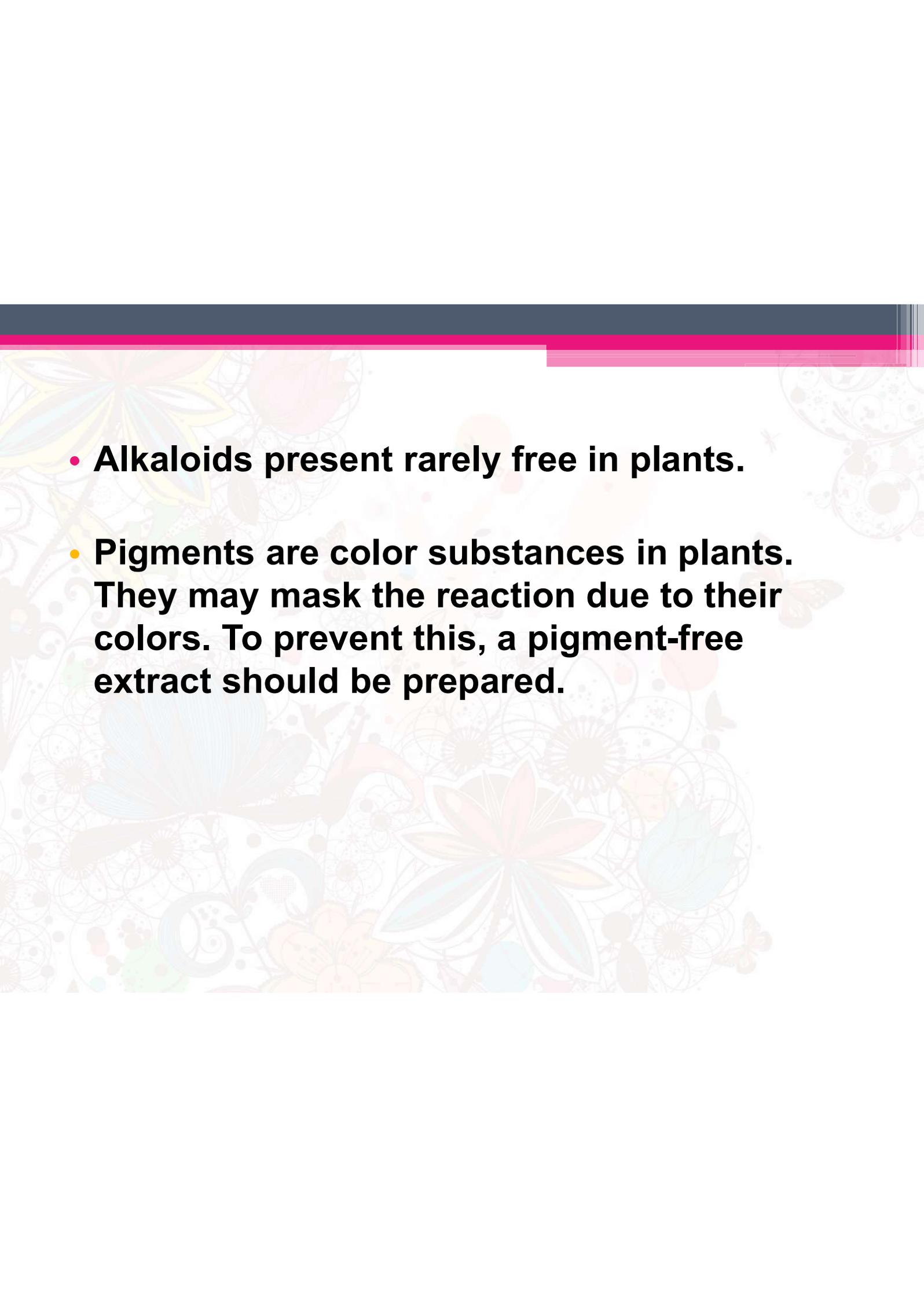


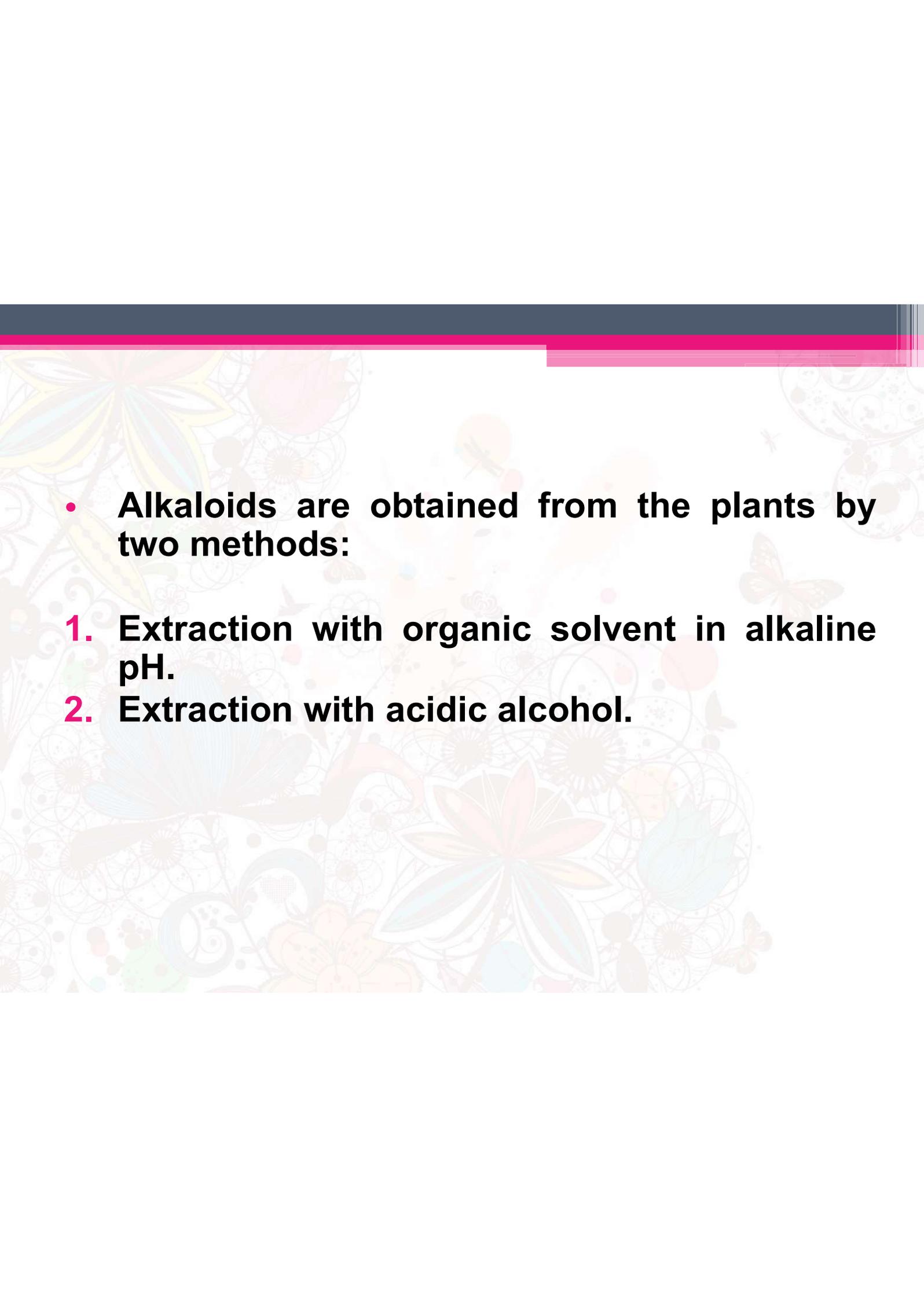
ALKALOID IDENTIFICATION REACTIONS 1-2



Alkaloids

- Alkaloids are naturally occurring organic substances, which contain atom/atoms of nitrogen. They have strong biological activities.
- Alkaloids are solid crystalline substances, colourless, odourless, with bitter taste.
- Salts of alkaloids are soluble in water and slightly soluble in organic solvents. Knowledge of the solubility of alkaloids and their salts is of considerable pharmaceutical importance.

- 
- **Alkaloids present rarely free in plants.**
 - **Pigments are color substances in plants. They may mask the reaction due to their colors. To prevent this, a pigment-free extract should be prepared.**

- 
- **Alkaloids are obtained from the plants by two methods:**
 - 1. Extraction with organic solvent in alkaline pH.**
 - 2. Extraction with acidic alcohol.**

Identification and Quantification of Alkaloids

- 1. Special recognition reactions are used in the determination of alkaloids.**
- 2. Following methods are used to identify alkaloids:**
 - Gravimetric Method
 - Volumetric Method
 - **Titrimetric Method***
 - **Chromatographic Method**
 - Biological Method
 - **Spectroscopic Method***

Major Alkaloid Reagents

Reagents	Chemical composition	Results
DRAGENDORFF	Solution of potassium bismuth iodide	Gives red-orange color + precipitate in H_2SO_4 solution.
MAYER	Potassium mercury-iodide solution	Gives yellowish white precipitate in alkaline or acidic solution.

Alkaloid Recognition Reactions-1

Experimental Procedure :

DRUG: Cortex Chinae (Rubiaceae)

% 70 ethanol containing %6 H₂SO₄

Boiling (erlenmayer, gas burner)

Cooled, precipitate

filtration through cotton

Filtrate

Flask 1

+

DRAGENDORFF

Flask 2

+

MAYER

Remaining liquid part

If the solution precipitate, presence of alkaloids is suspected and the experiment is continued.
Proteins, pigments and other nitrogenous compounds in plants can also give (+) results.
Proteins, pigments, other nitrogenous compounds; unlike alkaloids, it dissolves in chloroform phase.

The remaining liquid is taken into the separatory funnel.

Solution pH is made alkaline with 25% Na_2CO_3 .
+ Chloroform

(without shaking)

Chloroform phase

Taken to the separatory funnel.

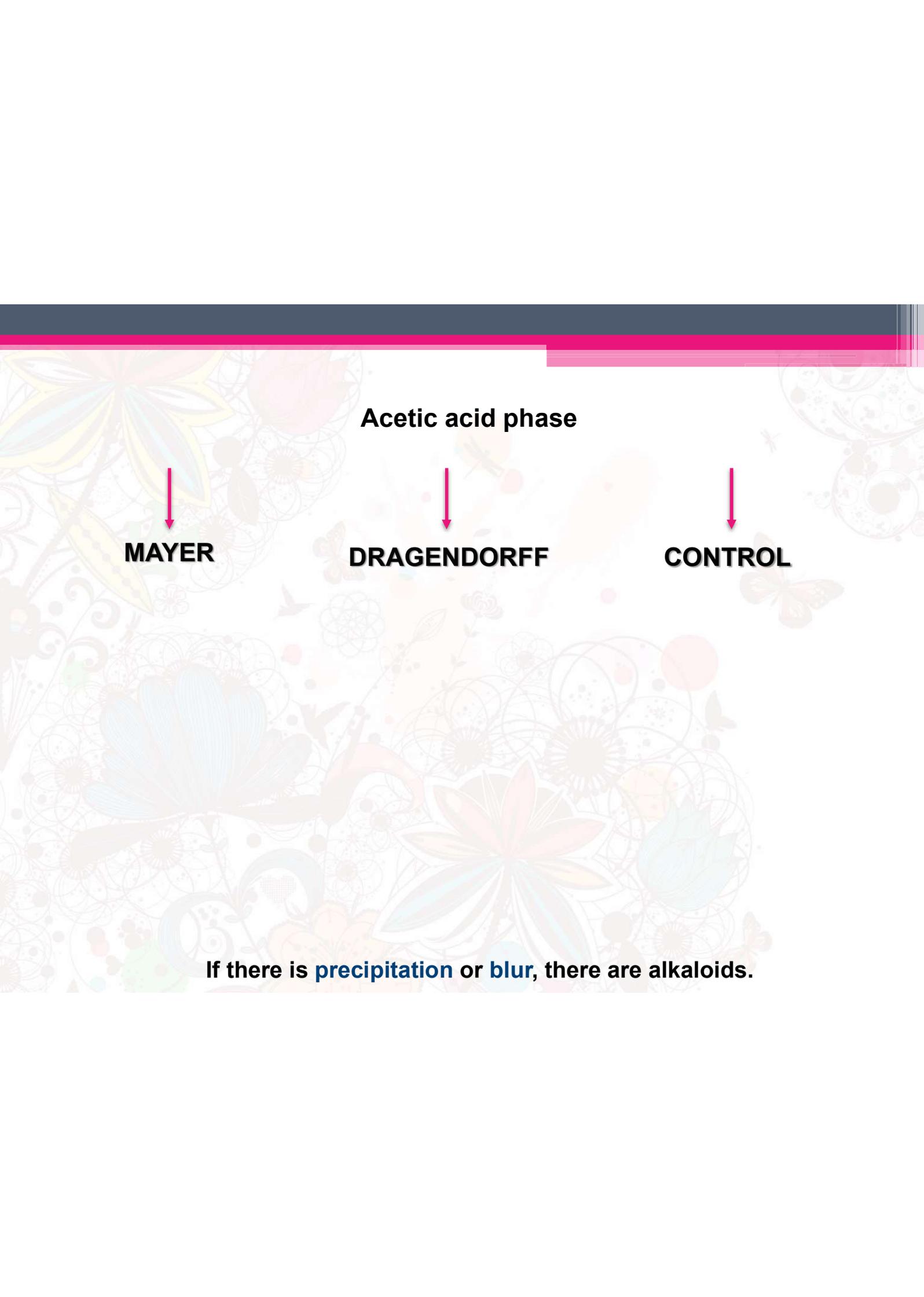
+10% acetic acid

(Acid medium for the reaction of the reagent)

Extraction

The acetic acid phase is
divided into 3 part

The chloroform
phase is
discarded.



Acetic acid phase

↓
MAYER

↓
DRAGENDORFF

↓
CONTROL

If there is **precipitation** or **blur**, there are alkaloids.

Special Color Reaction for Opium Alkaloids

DRUG: Opium (Papaveraceae)

+ % 10 Na_2CO_3

Boiling

Cooled

filtration through cotton

the filtrate is taken to the separating funnel

+ Chloroform

2 times Extraction

Chloroform phases are taken, combined
and
divided into 3 capsules

The chloroform phases in the capsules are evaporated to dryness on the WATER BATH (without carbonization).

Capsule 1

+ Marquis R.

Purple-red

MORPHINE

Capsule 2

Conc. H_2SO_4
+ FeCl_3

Brunette Green

CODEINE

Capsule 3

Conc. H_2SO_4
+ Conc. HNO_3

Red

NARCOTINE

Marquis R.:

conc. H_2SO_4 +
Formol