

Analytical Profiles of herbal drugs

Andrographis paniculata

- **Scientific name:** Andrographis paniculata
- **Family:** Acanthaceae
- **Common names:** Kalmegh, King of Bitters
- **Part used:** Whole plant, mainly leaves and aerial parts

Botanical Description

- Annual erect herb.
- Height: 30–110 cm.
- Stem is green and quadrangular.
- Leaves are lance-shaped and dark green.
- Flowers are small, white with purple spots.
- Fruits are narrow capsules containing yellow-brown seeds.

Geographical Source

- Native to India and Sri Lanka.
- Also found in China, Thailand, Malaysia, and Indonesia.

Chemical Constituents

1. Major Active Compounds (Diterpene Lactones)

- Andrographolide (marker compound)
- Neoandrographolide
- Deoxyandrographolide
- Andrograpanin

2. Other Constituents

- Flavonoids
- Polyphenols
- Alkaloids

Analytical Profile

A. Organoleptic Characters

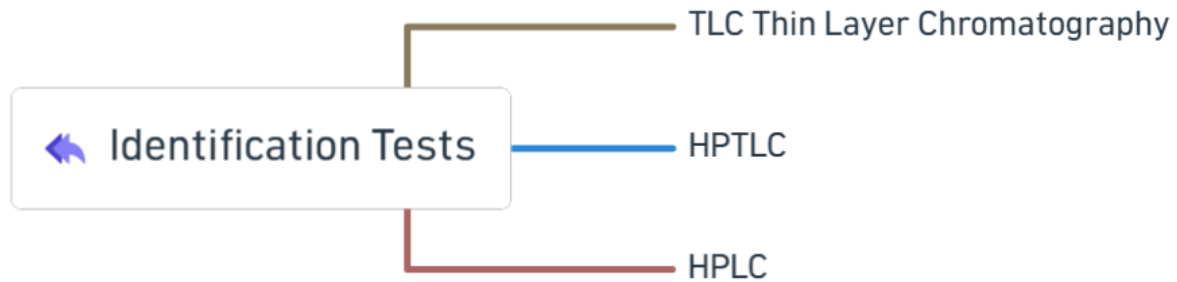
- **Color:** Green
- **Odor:** Characteristic

- **Taste:** Extremely bitter

B. Microscopic Characters

- Epidermal cells with stomata.
- Presence of glandular trichomes.
- Vascular bundles well developed.

Identification Tests



1. TLC (Thin Layer Chromatography)

- **Marker:** Andrographolide
- Mobile phase commonly used:
 - **Chloroform:** Methanol

2. HPTLC

- Standard method for quantification of andrographolide.

3. HPLC

- Most accurate method.
- Used for estimation of andrographolide content.

Quality Standards

- Moisture content controlled.
- Foreign matter should be minimal.
- Andrographolide content is measured.

Medicinal Uses

- Liver disorders
- Fever
- Cold and flu
- Anti-inflammatory
- Immunomodulatory
- Antidiabetic

Boswellia serrata

- **Scientific name:** Boswellia serrata
- **Family:** Burseraceae
- **Common name:** Indian Frankincense, Salai Guggul
- **Part used:** Oleo-gum resin

Botanical Description

- Medium-sized deciduous tree.
- Bark is papery and peels off.
- Leaves are compound.
- Flowers are white.
- Resin exudes from bark incisions.

Geographical Source

- India
- North Africa
- Middle East

Chemical Constituents

1. Boswellic Acids (Important Markers)

- β -Boswellic acid
- Acetyl β -boswellic acid
- 11-keto- β -boswellic acid (KBA)
- Acetyl-11-keto- β -boswellic acid (AKBA)

2. Other Constituents

- Essential oils
- Terpenoids
- Polysaccharides

Analytical Profile

Organoleptic Characters

- **Color:** Yellowish brown
- **Odor:** Aromatic
- **Taste:** Slightly bitter

Identification Tests



1. TLC/HPTLC

- **Marker compounds:** Boswellic acids

2. HPLC

- **Used for quantification of:**
 - KBA
 - AKBA

3. GC-MS

- Used for volatile oil analysis.

Quality Control

- Resin purity
- Ash value
- Boswellic acid content

Medicinal Uses

- Osteoarthritis
- Rheumatoid arthritis
- Asthma
- Inflammatory bowel disease
- Analgesic

Coleus forskohlii

Introduction

- **Scientific name:** Coleus forskohlii
- **Family:** Lamiaceae
- **Common names:** Makandi, Indian Coleus
- **Part used:** Roots

Botanical Description

- Aromatic perennial herb.
- Thick tuberous roots.
- Opposite leaves.
- Blue-purple flowers.

Geographical Source

- India (especially Karnataka and Tamil Nadu)
- Nepal
- Thailand

Chemical Constituents

1. Major Active Constituent

- Forskolin (Coleonol)

2. Other Compounds

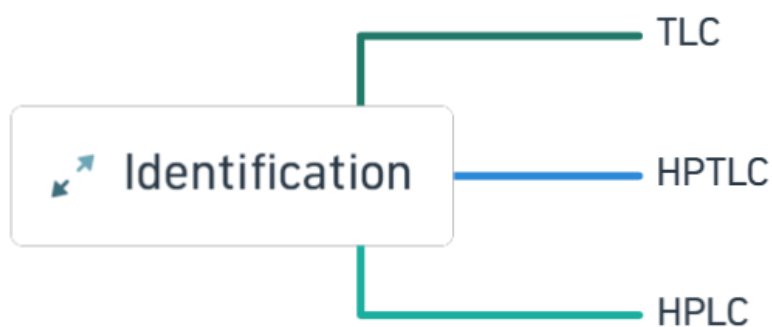
- Diterpenes
- Essential oils
- Flavonoids

Analytical Profile

Organoleptic Characters

- **Color:** Brown roots
- **Odor:** Aromatic
- **Taste:** Bitter

Identification



1. TLC

- **Marker:** Forskolin

2. HPTLC



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