



Pharmacognosy



Unit 2



Cultivation, Collection, Processing and Storage of Drugs of Natural Origin



From Nature
Sustainably Sourced



Careful Handling
Quality Preserved



Proper Processing
Potency Retained



Safe Storage
Efficacy Ensured



Cultivation



Collection



Processing



Storage

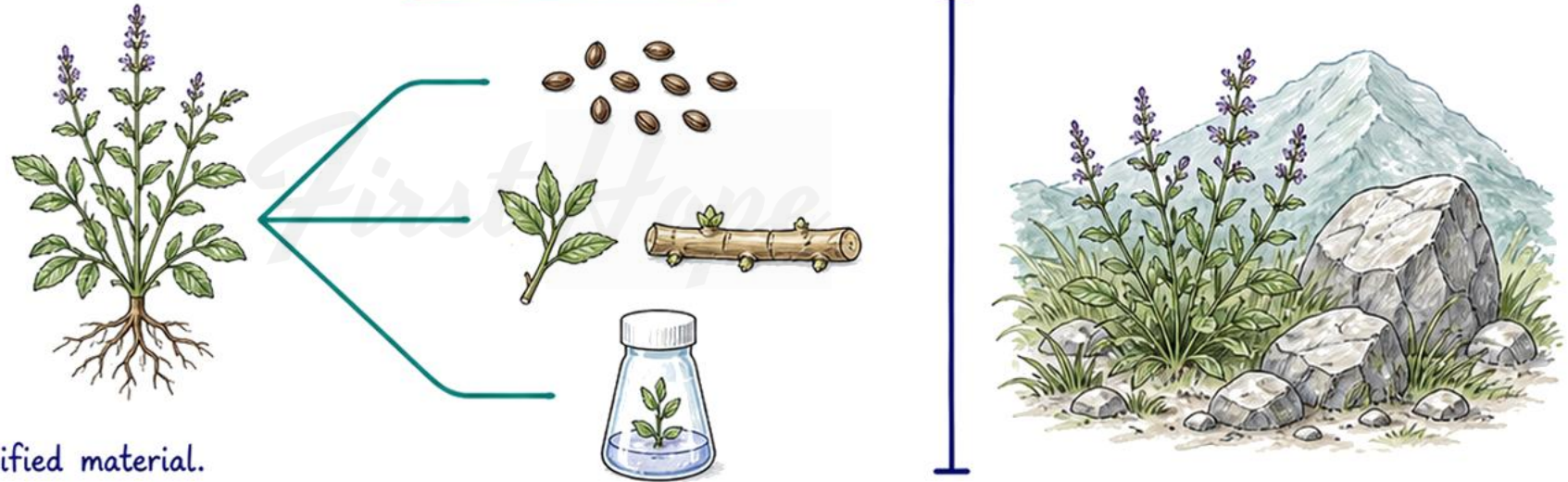


CULTIVATION OF MEDICINAL PLANTS

Meaning

- Planned growing of authenticated medicinal plants under managed environmental and agricultural conditions.
- Aim: reproducible identity, traceability, yield and quality—not an automatic guarantee of maximum constituents or zero contamination.

Main routes



Objectives

- Reliable supply of correctly identified material.
- More consistent quality and easier documentation.
- Reduced pressure on wild populations when cultivation is appropriate.
- Better control of soil, water, inputs, harvest and post-harvest handling.

- Seed propagation.
- Vegetative propagation.
- Tissue culture / micropropagation.
- Wild collection under GACP when cultivation is unsuitable.

Key idea: cultivation + authentication + GACP + testing = controlled starting material.

SEED PROPAGATION

Method

- Sow authenticated, mature seed of known origin under suitable soil/substrate, moisture and temperature.
- Check purity, health and viability; special dormancy-breaking treatment may be species-specific.

Examples in the syllabus: senna, isabgol and coriander.



Advantages

- Economical for producing many plants.
- Seed is usually convenient to transport and store.
- Sexual reproduction preserves or creates genetic variation useful for selection.

Limitations

- Progeny may vary in morphology and chemical profile.
- Dormancy, slow germination or loss of viability may occur.
- Conventional seed-bank storage is most suitable for orthodox seeds.

VEGETATIVE PROPAGATION

New plants arise from vegetative organs rather than seed.

Types

- Stem cuttings → roots and shoots form from a stem piece.



- Rhizomes → ginger and turmeric.



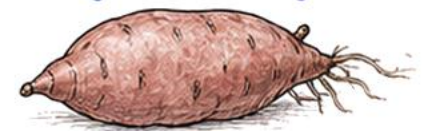
- Bulb units/cloves → garlic.



- Offsets/suckers → Aloe.



- Tubers may be modified stems or roots; identify the organ correctly.



Advantages

- Usually faster establishment and true-to-type clonal multiplication.
- Useful for sterile plants or taxa with poor seed set.

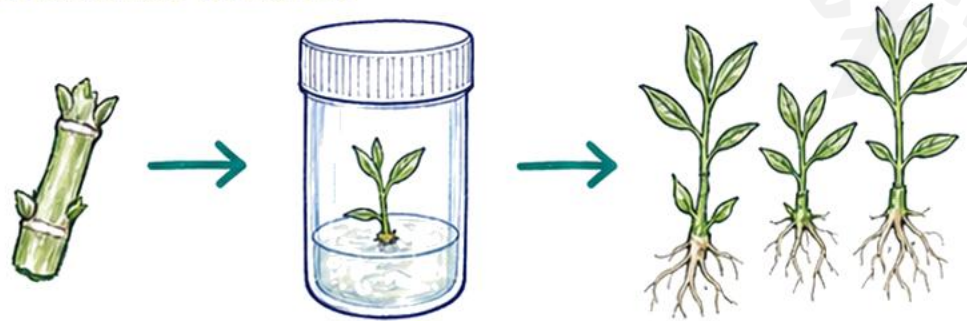
Limitations

- Systemic pathogens can pass from the parent.
- Mutations/off-types can occur; chemical uniformity still requires control.
- Multiplication rate may be lower than seed or micropropagation.

TISSUE CULTURE & WILD COLLECTION

Micropropagation

- Aseptic culture of an explant on defined nutrient medium to regenerate plants.
- Can rapidly multiply selected genotypes and support ex-situ conservation.
- Pathogen-free stock requires suitable meristem culture, indexing and clean handling.
- Risks: cost, contamination, skilled-lab needs and somaclonal variation.



Wild collection

- Used when cultivation is impractical or for legally permitted, sustainable supply.
- Risks: variable identity/chemistry, contamination, unreliable supply and population decline.



Quality safeguards



- Correct taxonomic identification and voucher/reference material.



- Legal access, harvest limits, clean tools and separation of species/parts.



- Traceability plus identity, purity and contaminant testing.

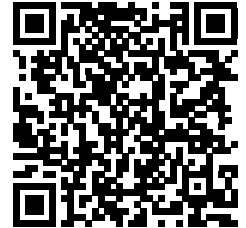


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