

# **SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES**

*Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai*

*Approved by Pharmacy Council of India, New Delhi.*

**Coimbatore -641035**



**COURSE NAME : PHARMACOGNOSY**

**D.PHARM / I YEAR**

**TOPIC 9 : VOLATILE OIL**

## DESIGN THINKING STAGES IN CLASSIFICATION

**Empathize:** Understand the users — in this case, students, pharmacists, or researchers who use the alphabetical classification system.

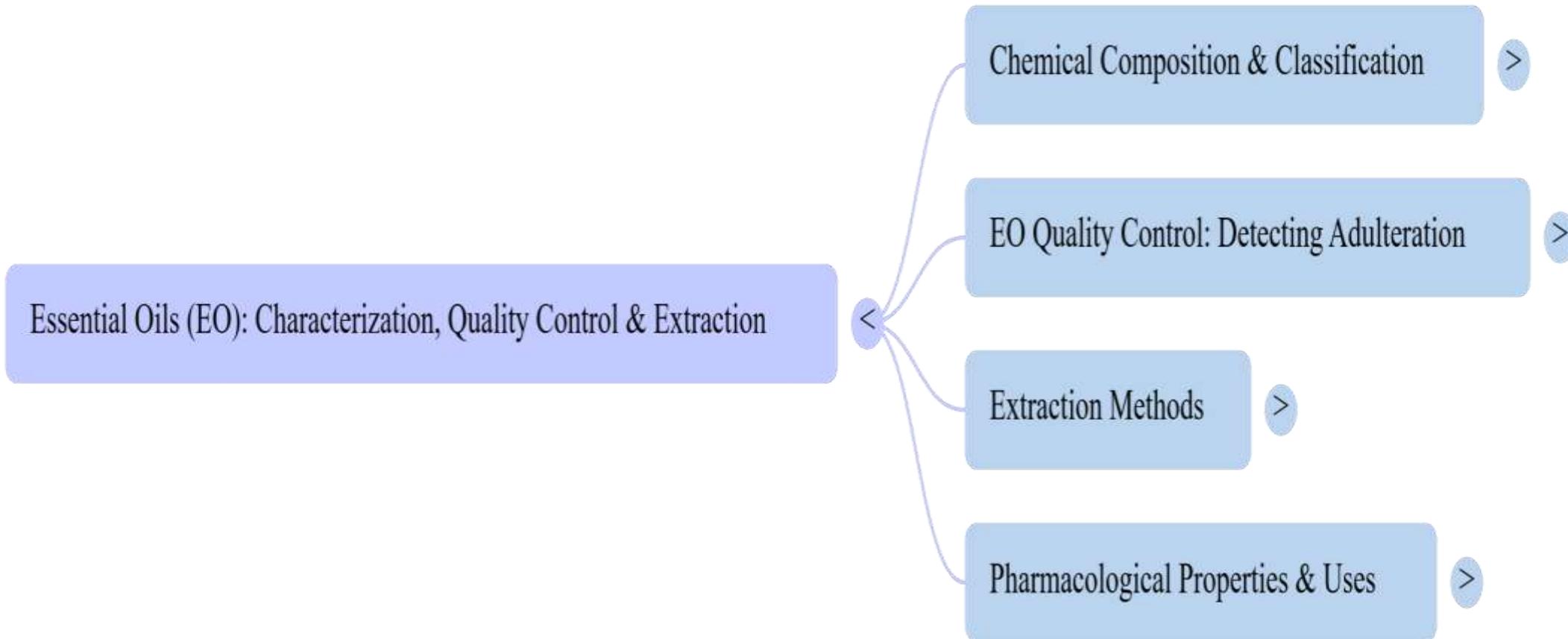
**Define:** Clearly define the problem based on the insights from the empathize stage.

**Ideate:** Generate possible solutions or improvements.

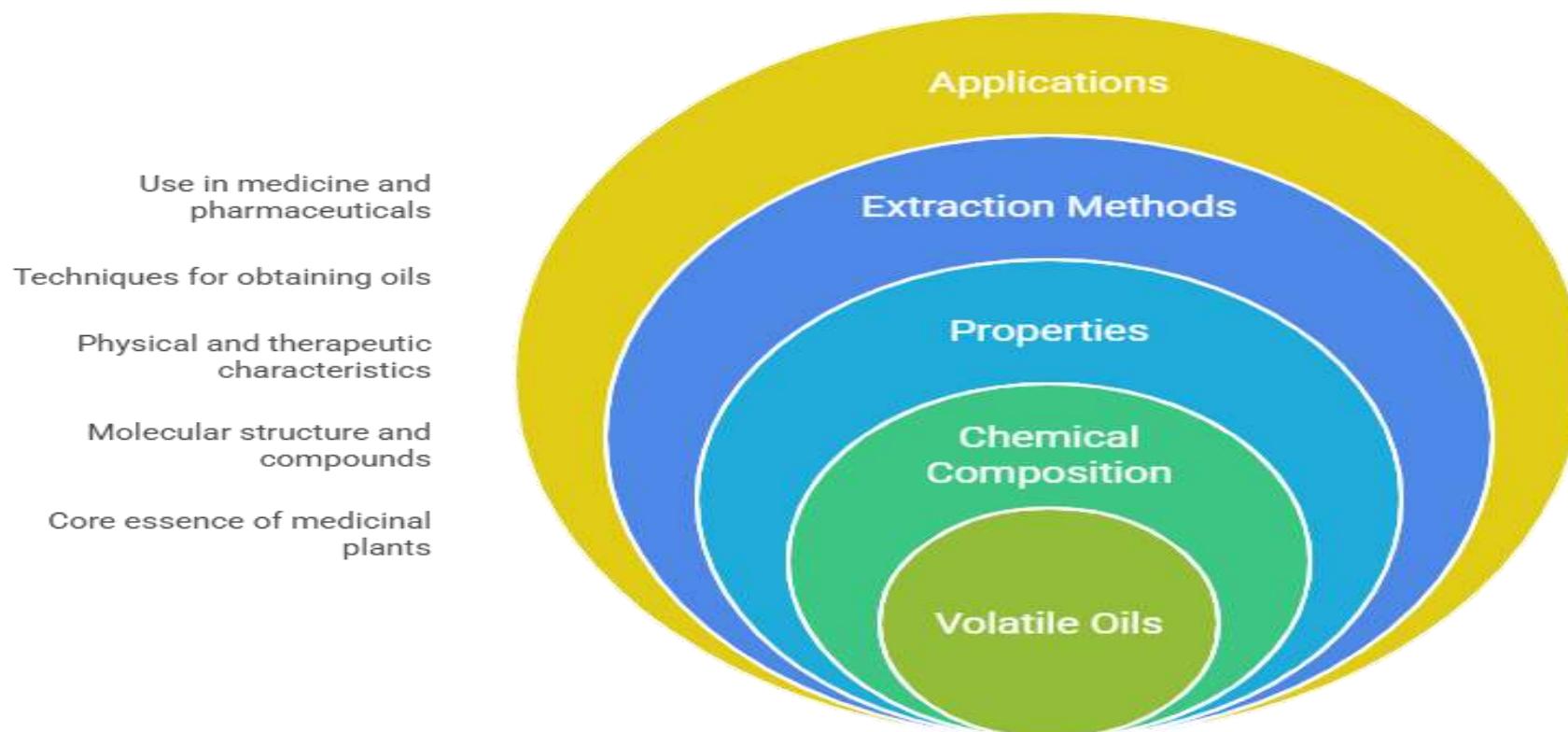
**Prototype:** Create a tangible version of your solution

**Test:** Evaluate the prototype with real users.

# MINDMAP

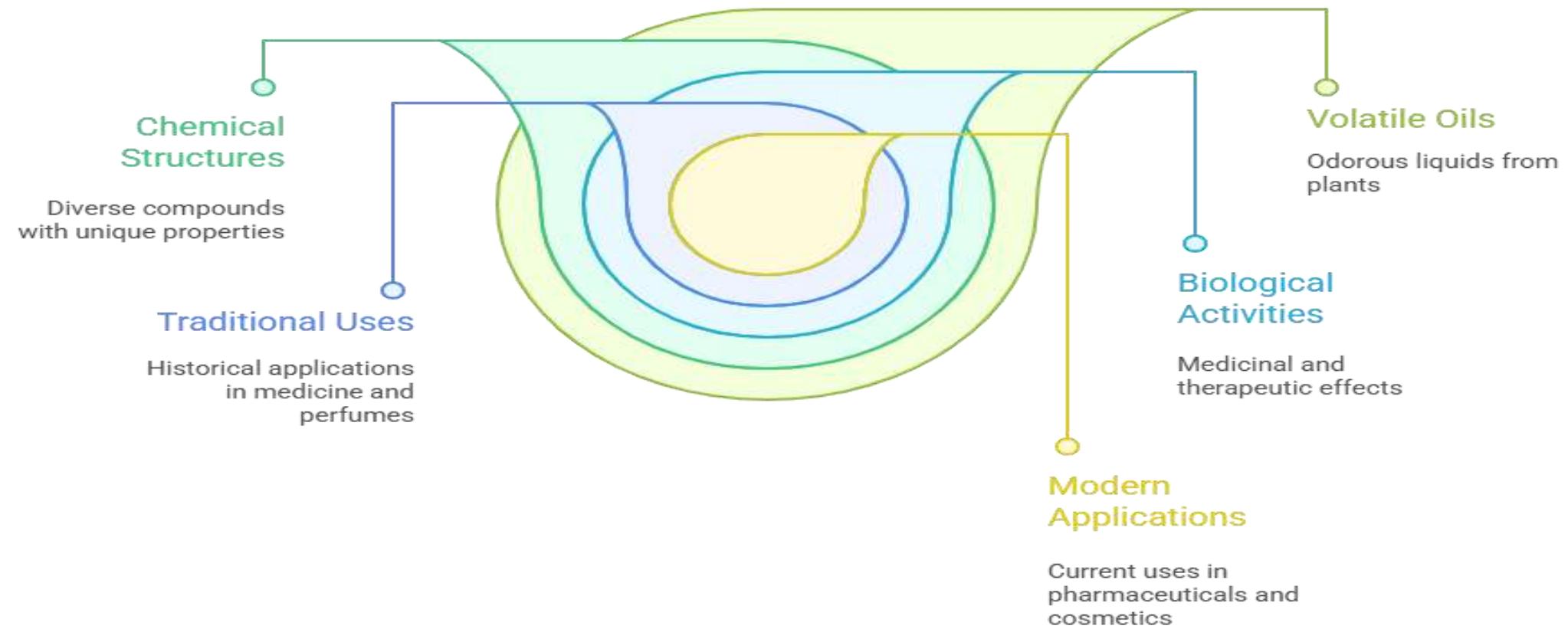


## Volatile Oils in Pharmacognosy

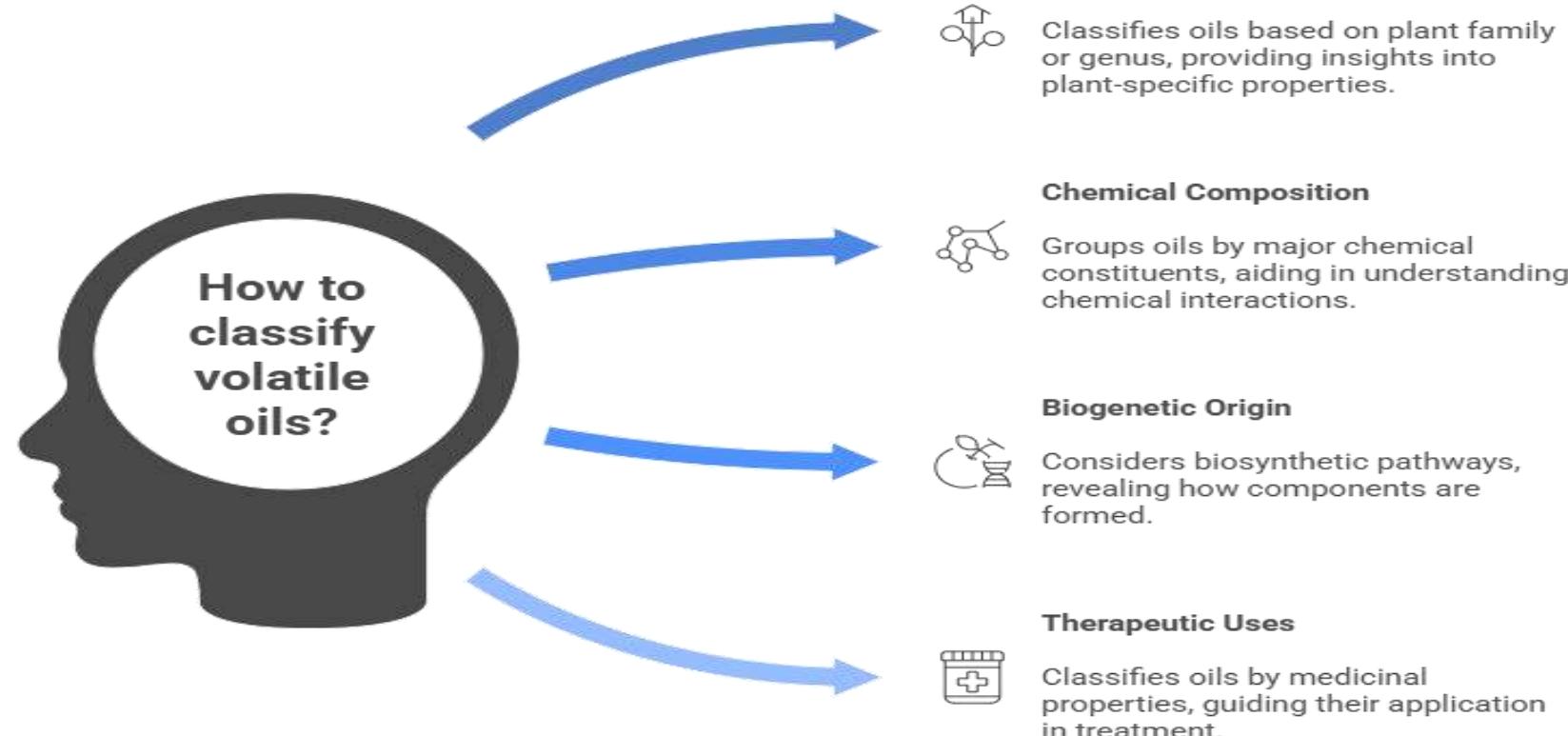


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## Volatile Oils in Pharmacognosy

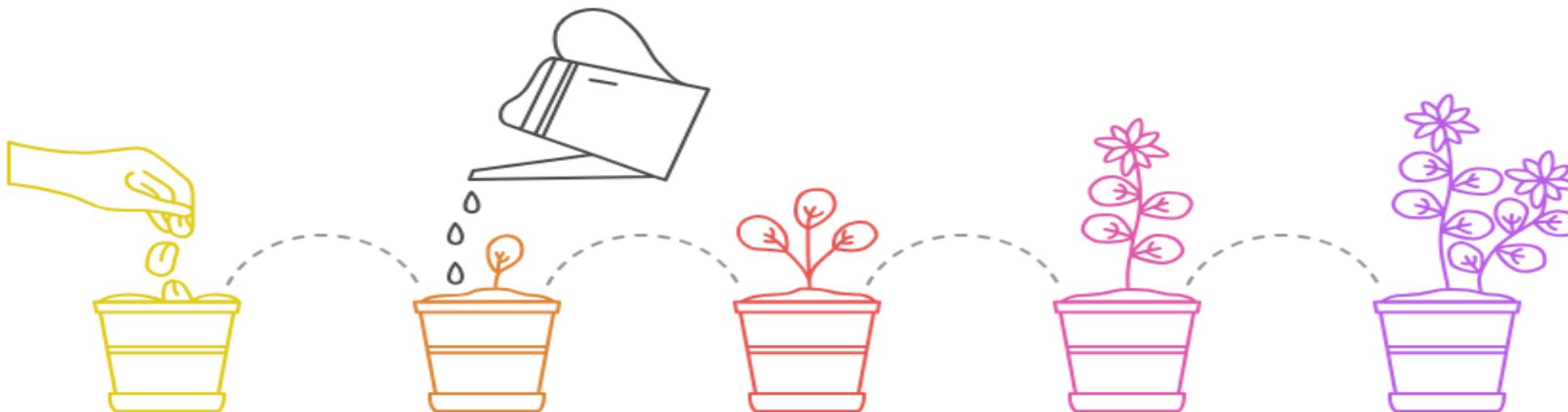


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## Biosynthesis of Volatile Oils



### Precursor Molecules

Simple compounds ready for conversion

### Mevalonate Pathway

Terpene production from IPP and DMAPP

### Shikimic Acid Pathway

Aromatic compound synthesis

### Fatty Acid Pathway

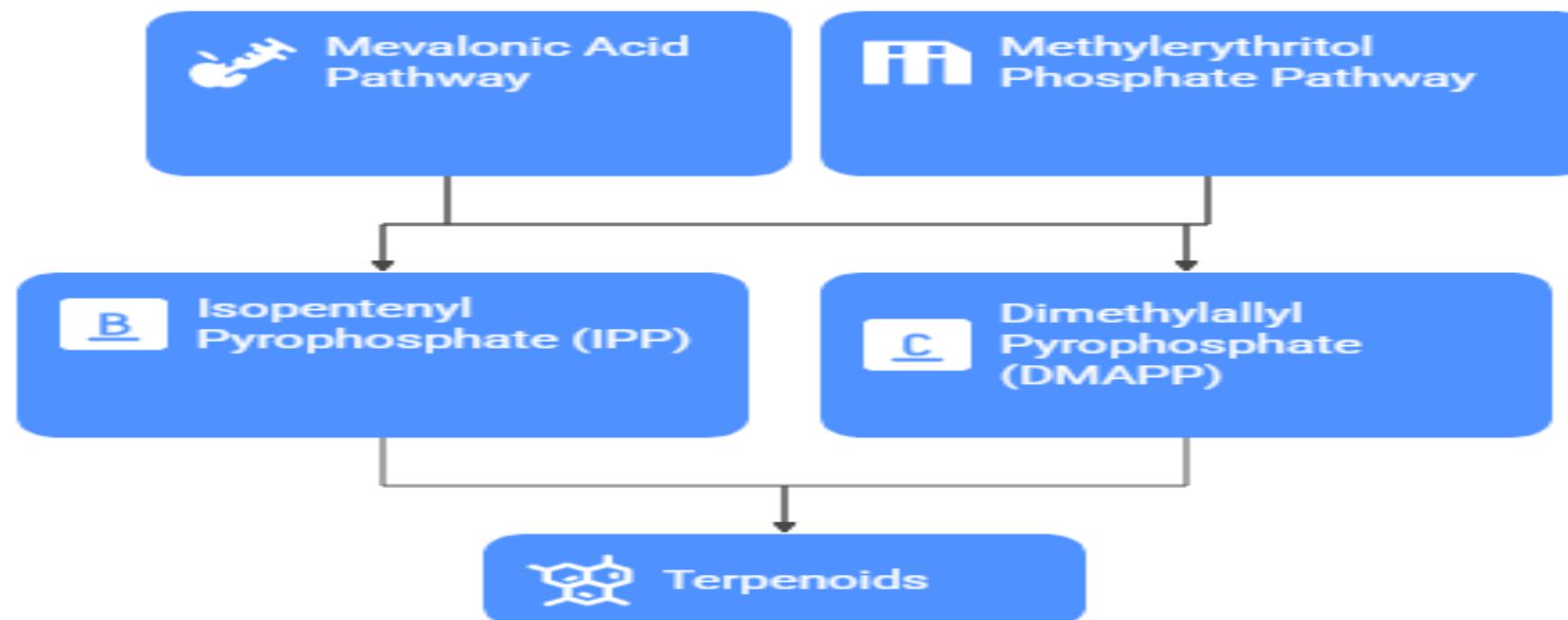
Formation of specific volatile compounds

### Volatile Oil Products

Complex mixture of aromatic compounds

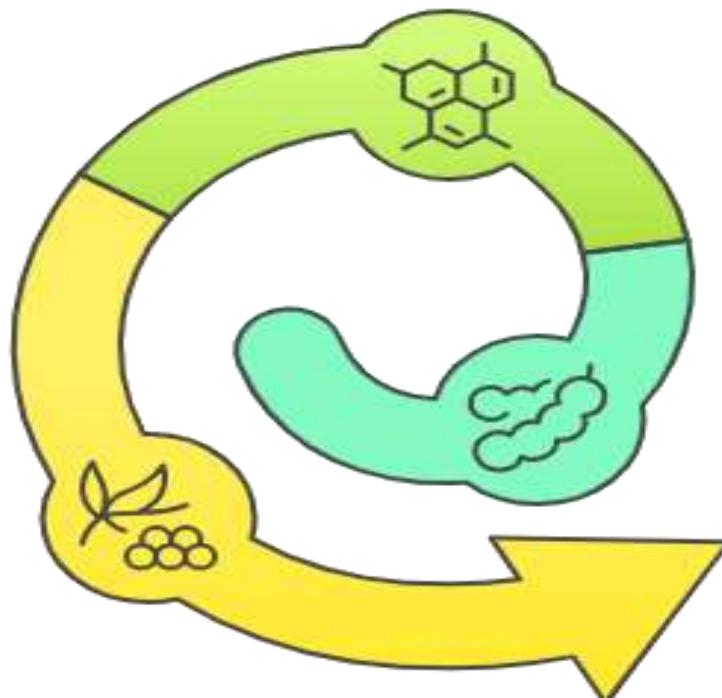
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## Biosynthesis of Terpenoid Building Blocks



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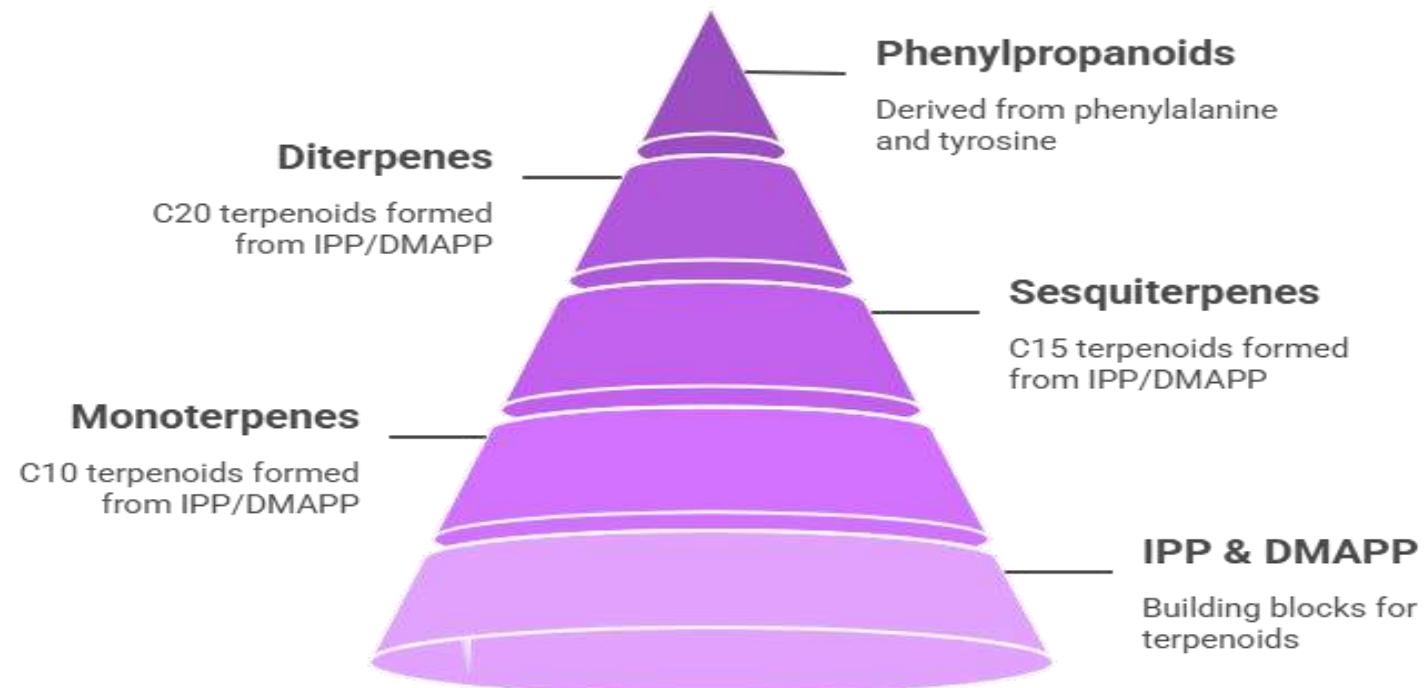
## Flavonoid Synthesis Pathway



- 01 Shikimic Acid Pathway
- 02 Flavonoid Synthesis
- 03 Flavonoids in Fruits and Vegetables

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## Volatile Oil Composition Hierarchy



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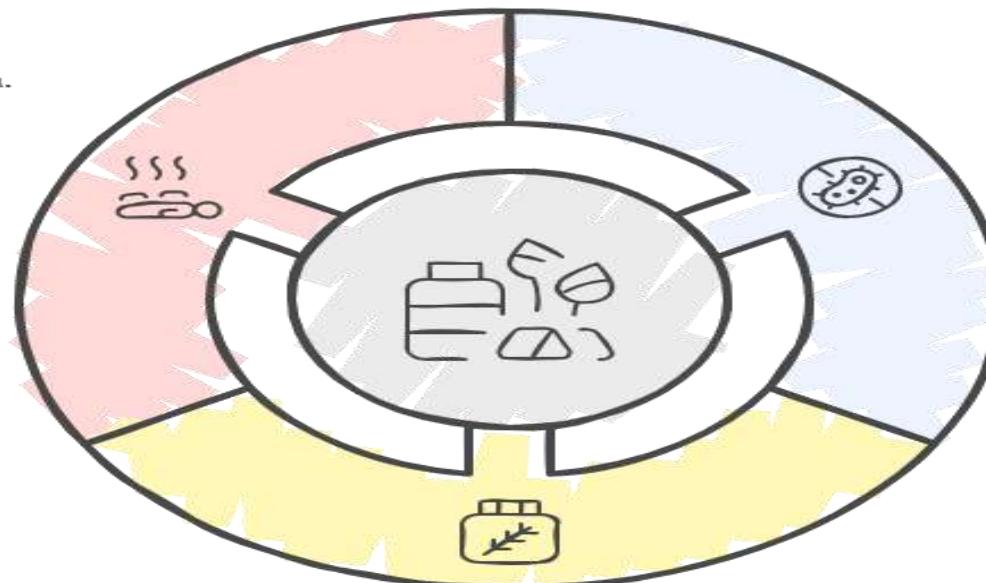
## Pharmacological Activities of Volatile Oils

### Analgesic

Oils like peppermint and clove relieve pain.

### Antimicrobial

Oils like tea tree and thyme fight bacteria, fungi, and viruses.



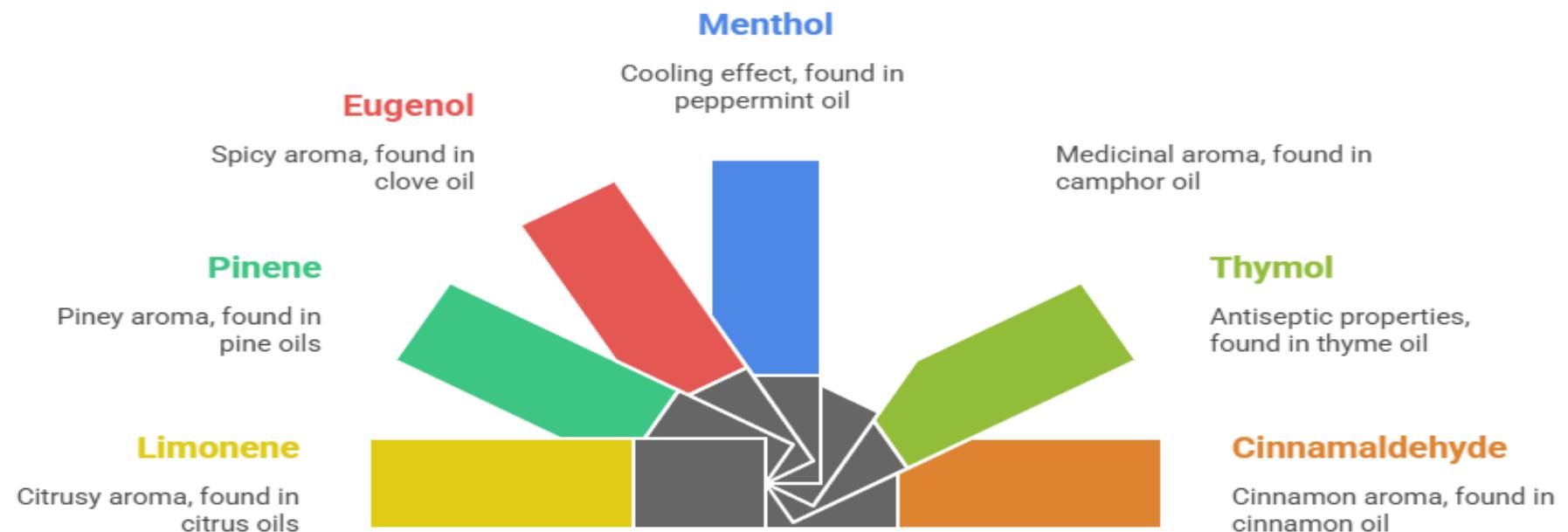
### Anti-

### inflammatory

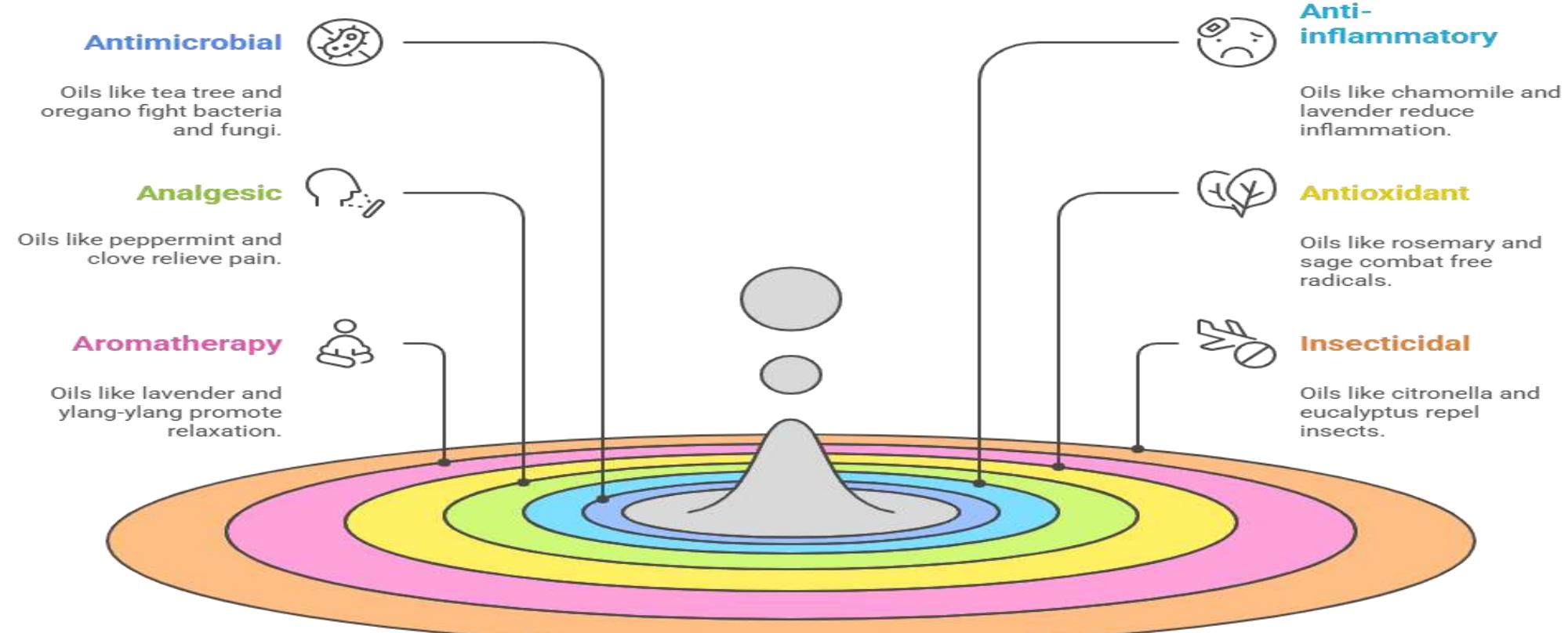
Oils like chamomile and lavender reduce inflammation.

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## Which volatile oil constituent should be used based on desired aroma or effect?



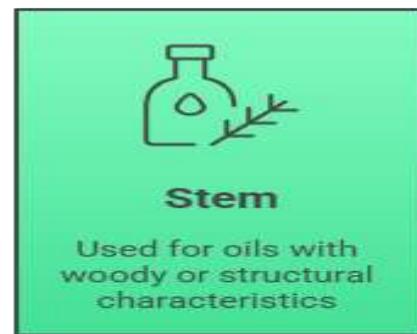
## Pharmacological Activities of Volatile Oils



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# ASSESSMENT

**Which plant part should be used for volatile oil extraction?**



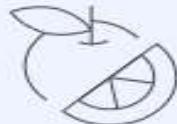
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## Which extraction method is best for citrus fruit peel?



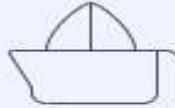
### Maceration

Involves soaking the peel in a solvent, which may not be as efficient for citrus oils.



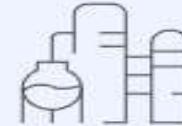
### Enfleurage

A traditional method using fat to absorb oils, not commonly used for citrus.



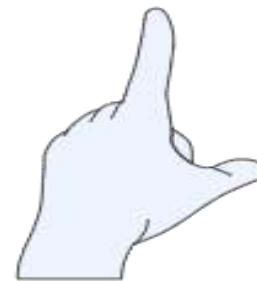
### Expression (Cold Pressing)

The most frequent method, preserving the oil's quality and aroma.



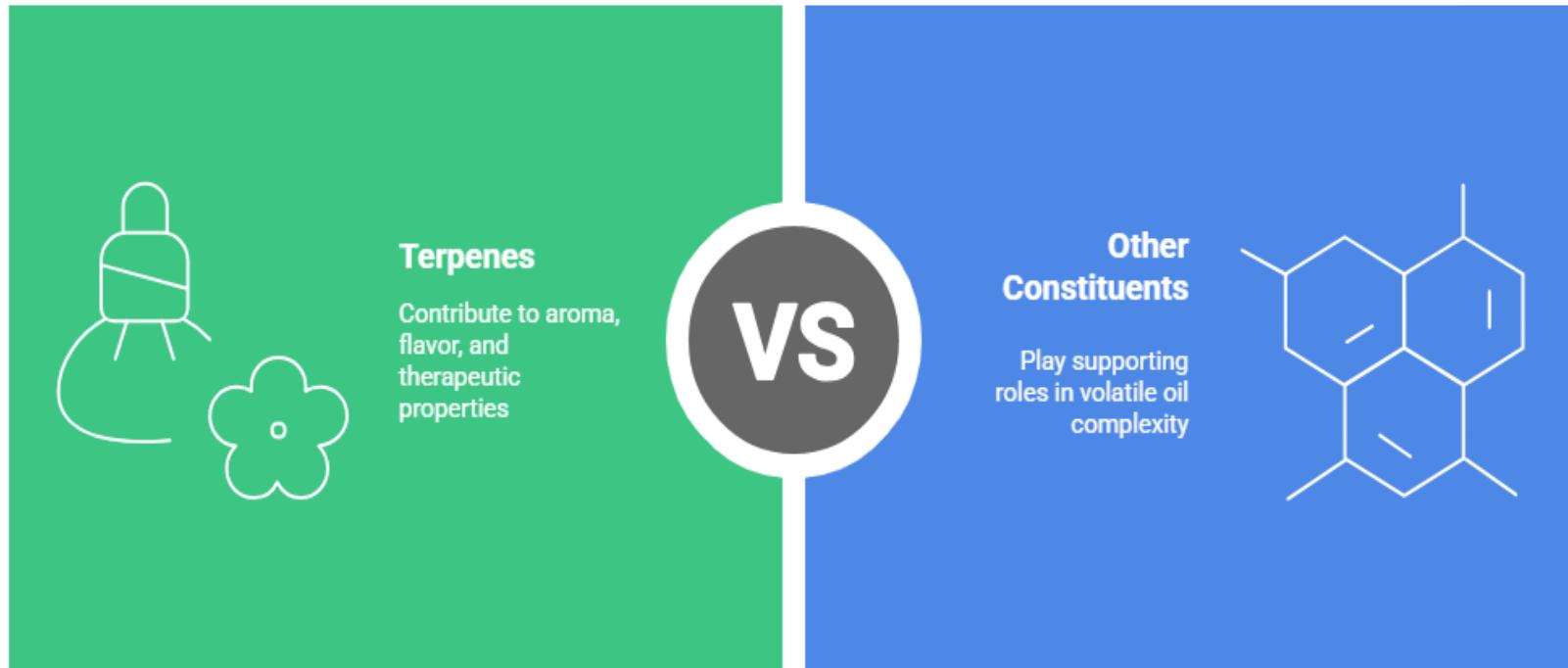
### Supercritical Fluid Extraction

A modern method, but may alter the oil's composition.



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Which chemical constituent is most responsible for the therapeutic properties of volatile oils?



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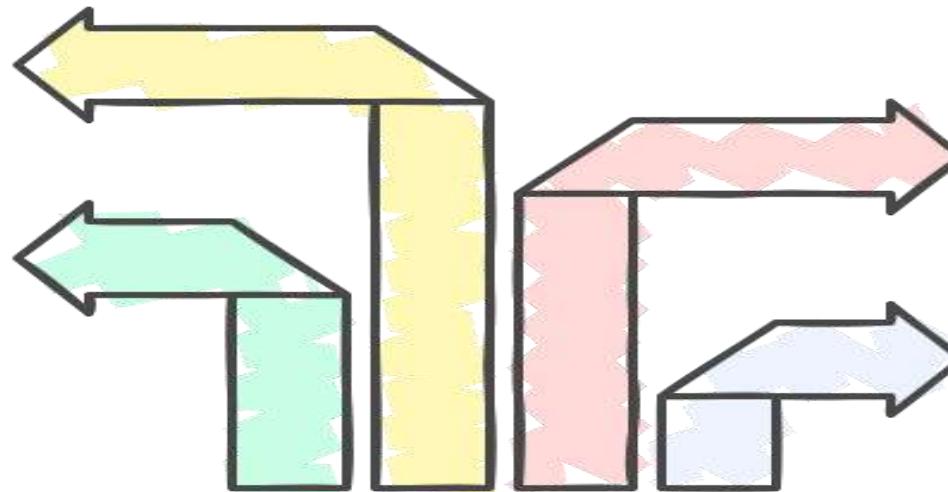
## Which property is NOT associated with volatile oils?

### Optical Activity

Many volatile oils exhibit optical activity, which is important in chemical analysis.

### Aromatic Odor

Strong aromatic qualities are a defining characteristic of volatile oils.



### Solubility in Water

Volatile oils are generally not soluble in water, limiting their use in certain applications.

### High Volatility

Volatile oils evaporate quickly at room temperature, making them aromatic.

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## What is the main application of the volatile oil from the depicted plant?



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## REFERENCES

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# Thank You

