

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: ALKALOIDS

DESIGN THINKING STAGES IN CLASSIFICATION

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

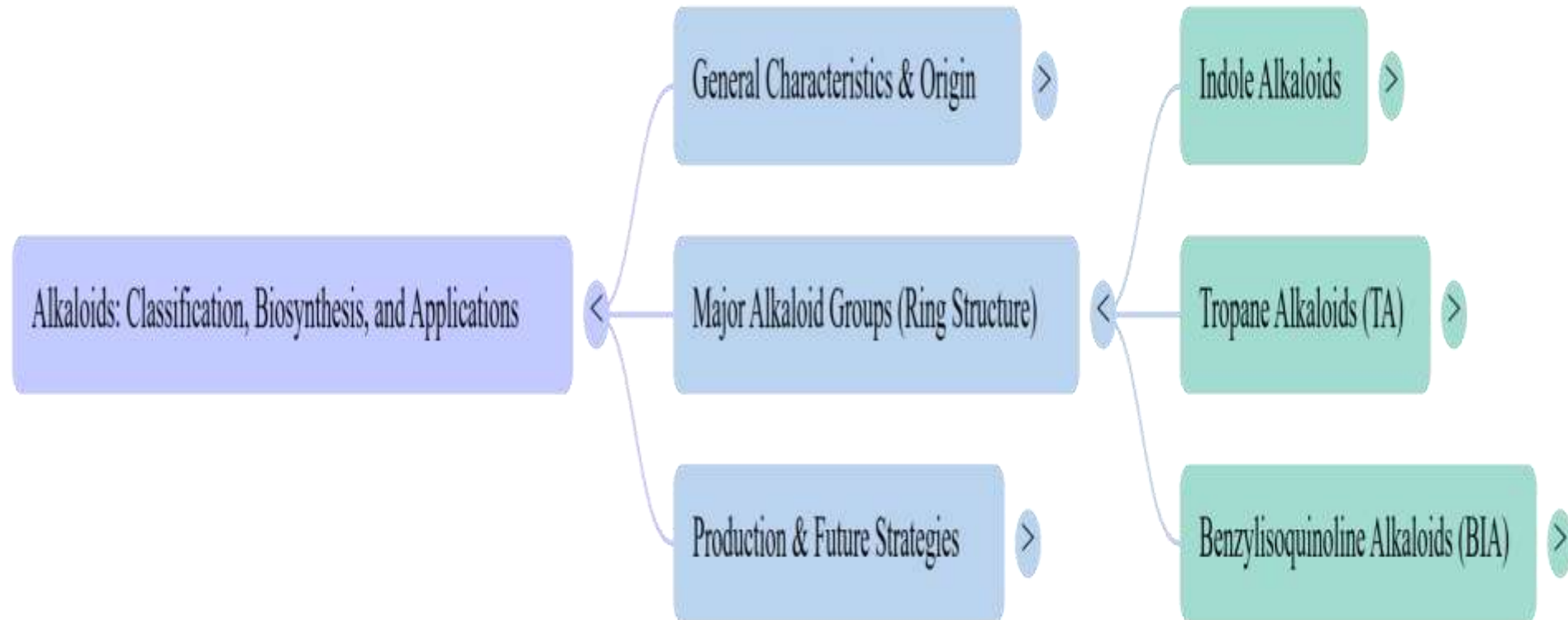
Define: Clearly define the problem based on the insights from the empathize stage.

Ideate: Generate possible solutions or improvements.

Prototype: Create a tangible version of your solution

Test: Evaluate the prototype with real users.

MINDMAP

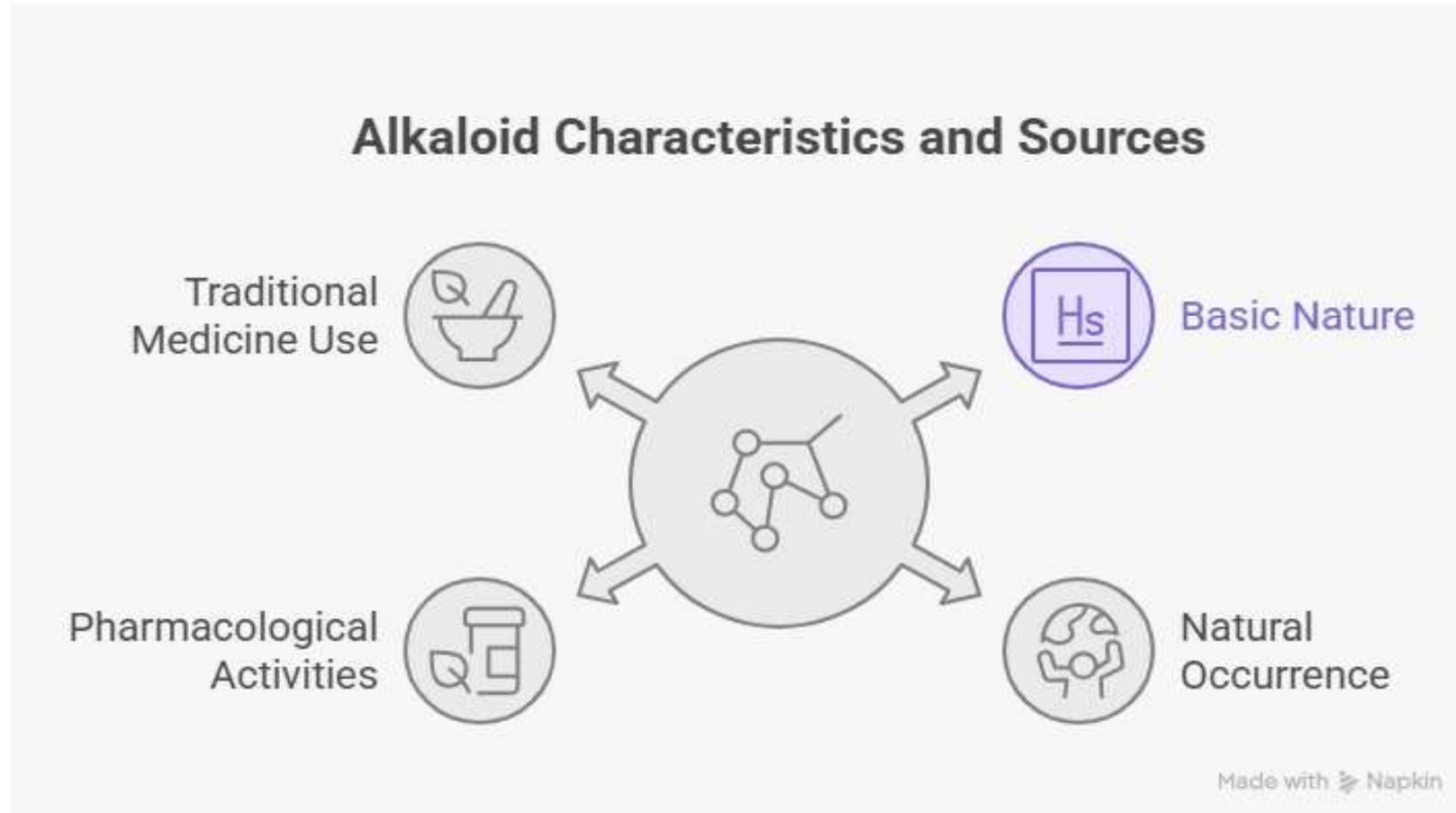


Unveiling the Multifaceted Nature of Alkaloids



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INTRODUCTION



Properties of Alkaloids

Chemical Properties

Reactions and interactions
with other substances

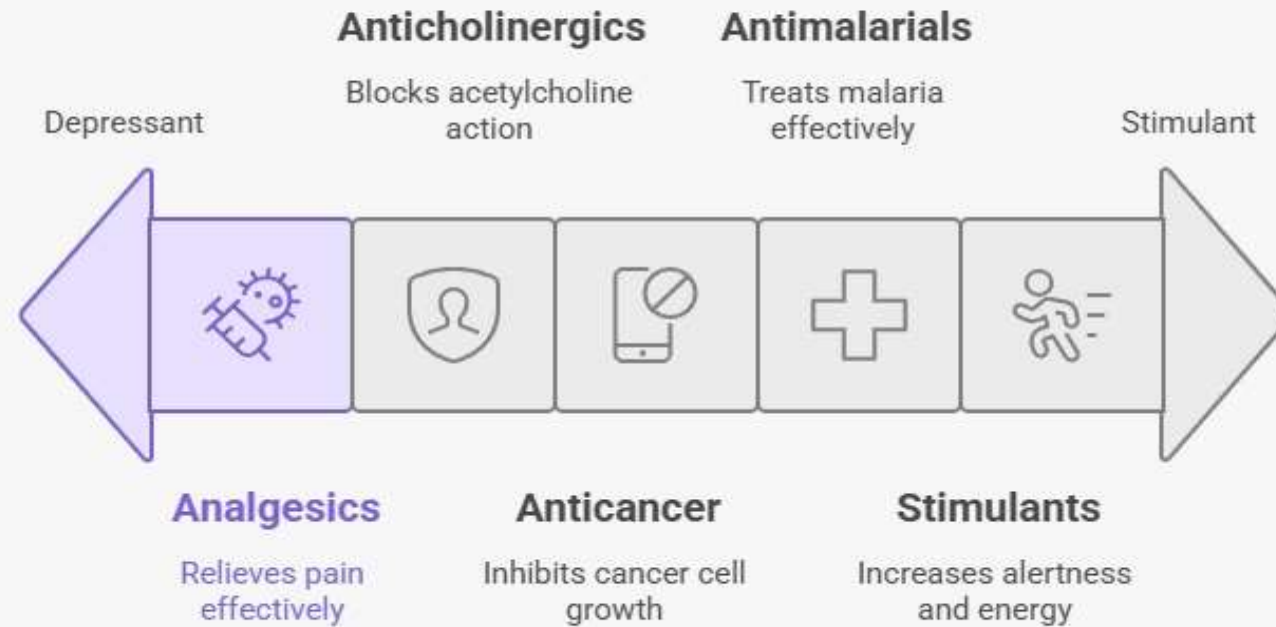


Physical Properties

Characteristics like state,
color, and solubility

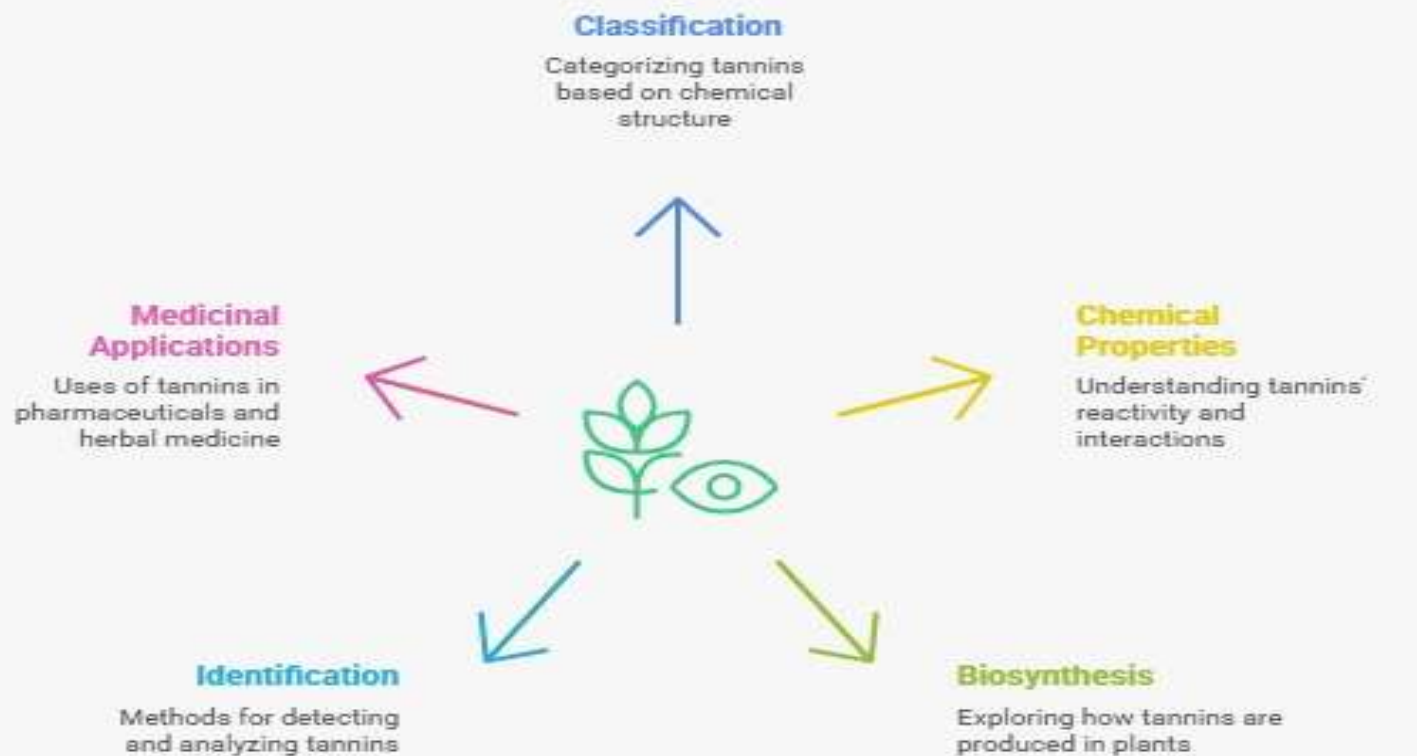
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Alkaloid pharmacological activity ranges from pain relief to stimulation.



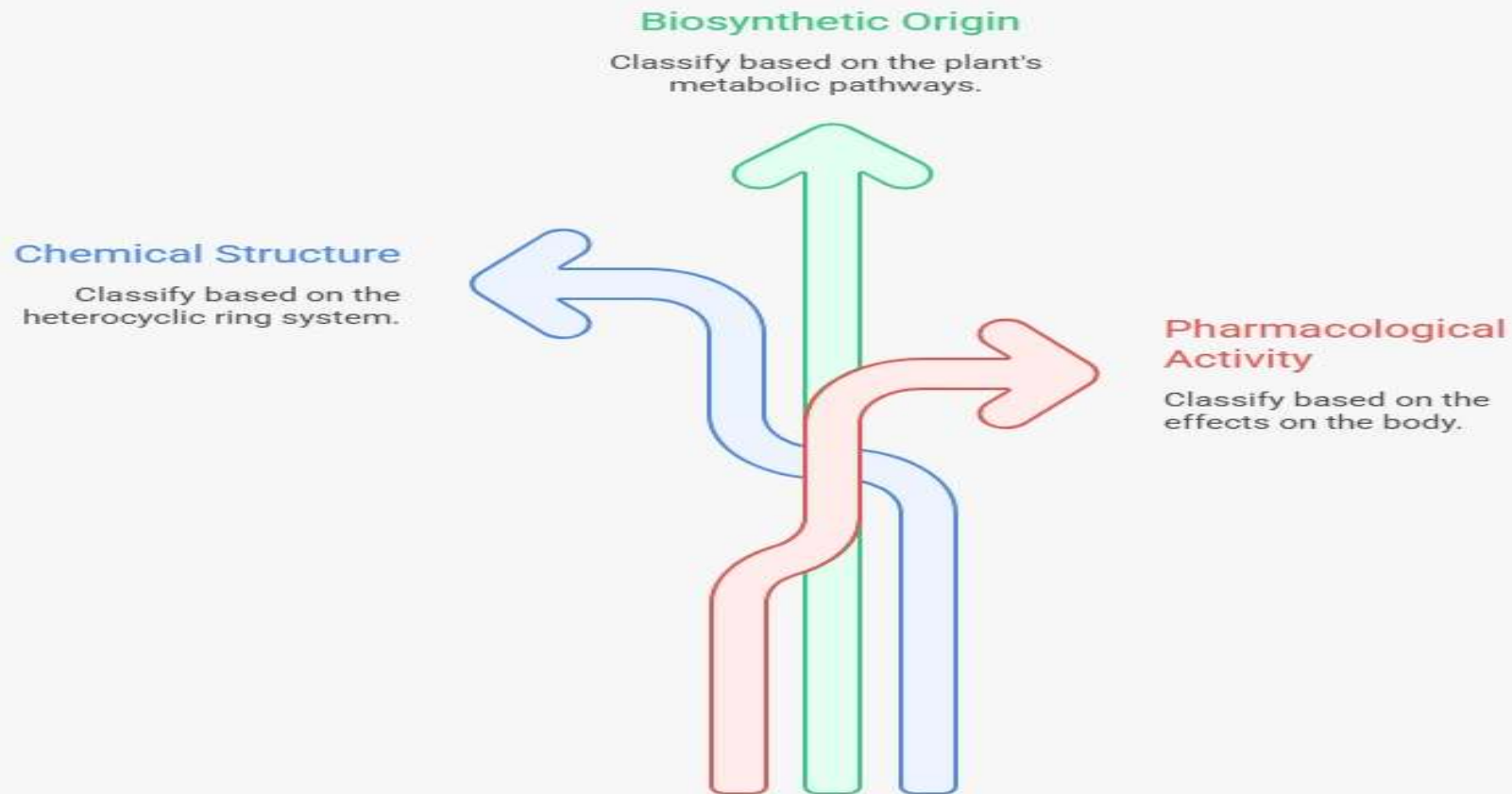
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Tannin Research Areas



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How to classify alkaloids?



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Tannin Biosynthesis



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What are the physical properties of alkaloids?

State

Most are crystalline solids, but some are liquids like nicotine.

Color

Generally colorless, but some are colored like berberine.

Melting Point

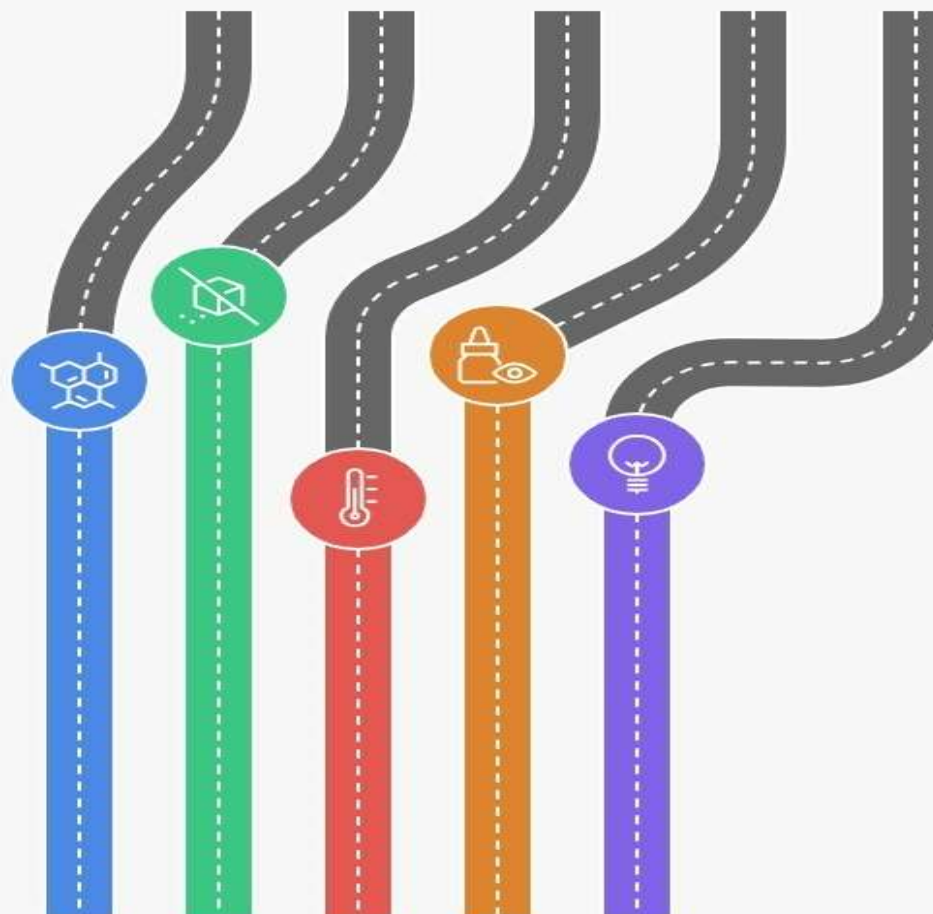
Definite melting points aid in identification.

Solubility

Soluble in organic solvents, sparingly in water. Salts are water-soluble.

Optical Activity

Most are optically active, rotating plane-polarized light.



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Alkaloid Biosynthesis



Amino Acid Precursors

Amino acids are the main building blocks for many alkaloids.



Other Precursors

Acetate and mevalonate also contribute to the structure of alkaloids.



Pathway Variation

The specific biosynthetic pathway differs based on the alkaloid type.

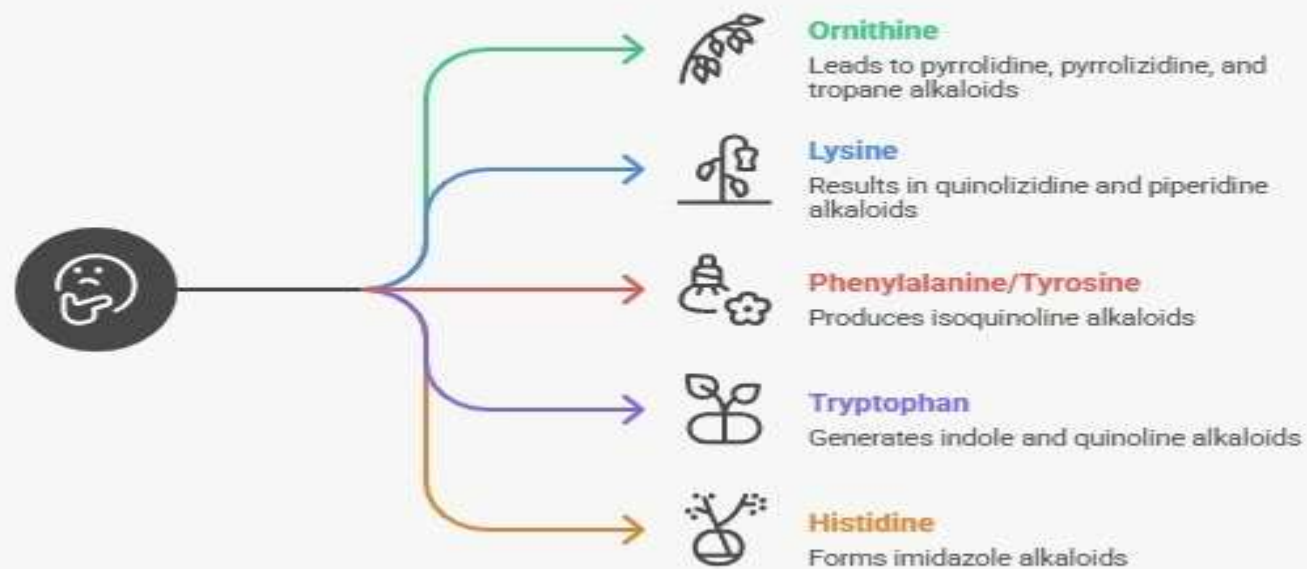
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Alkaloid Drug Classes

-  **Analgesics**
Pain relievers like morphine.
-  **Anticholinergics**
Block acetylcholine, like atropine.
-  **Antimalarials**
Treat malaria, like quinine.
-  **Anticancer agents**
Fight cancer, like vinblastine.
-  **Stimulants**
Increase alertness, like caffeine.

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Which amino acid precursor is the alkaloid derived from?



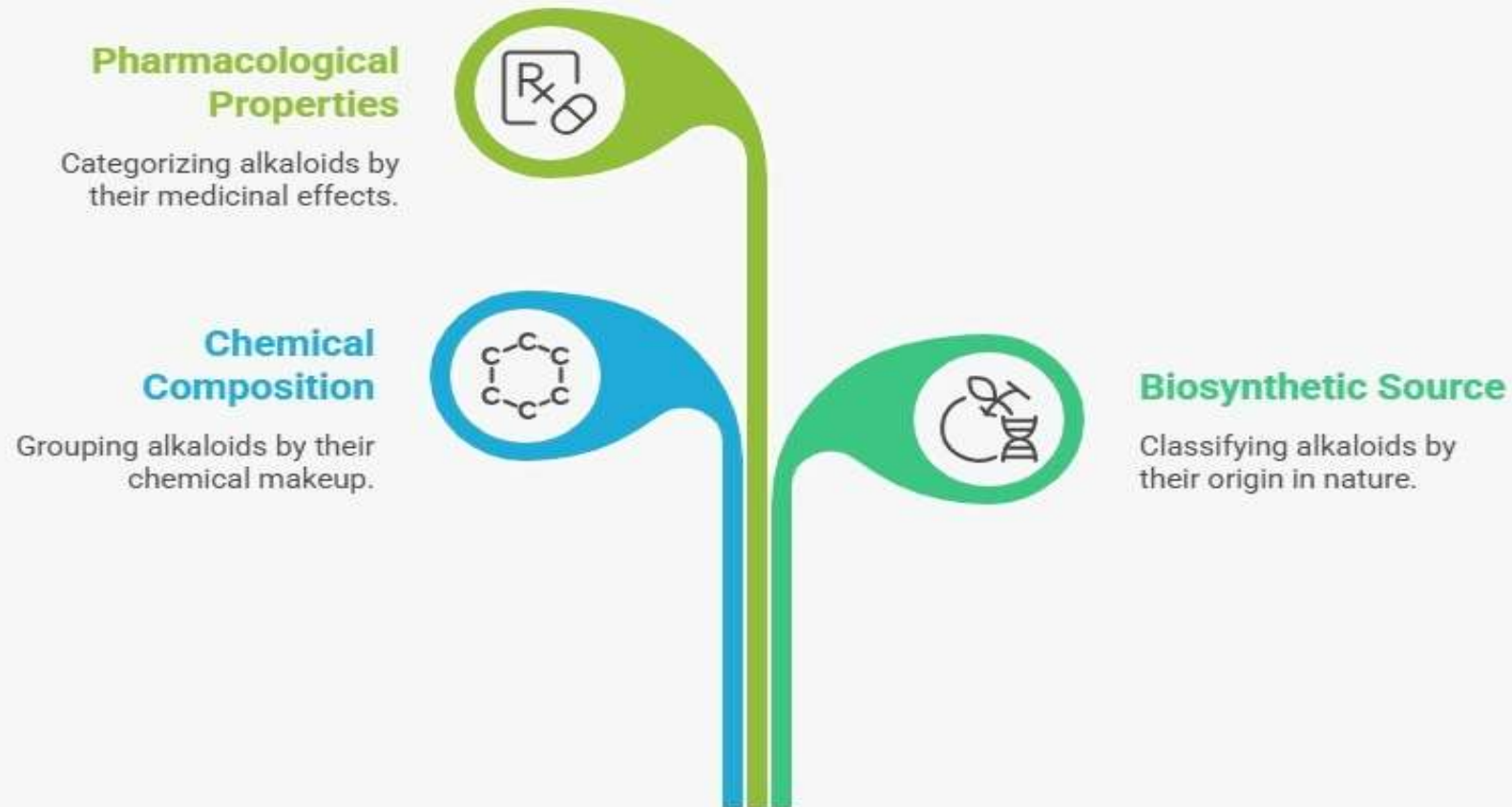
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Alkaloid Classification Based on Ring Structure



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Unveiling the Dimensions of Alkaloid Categorization



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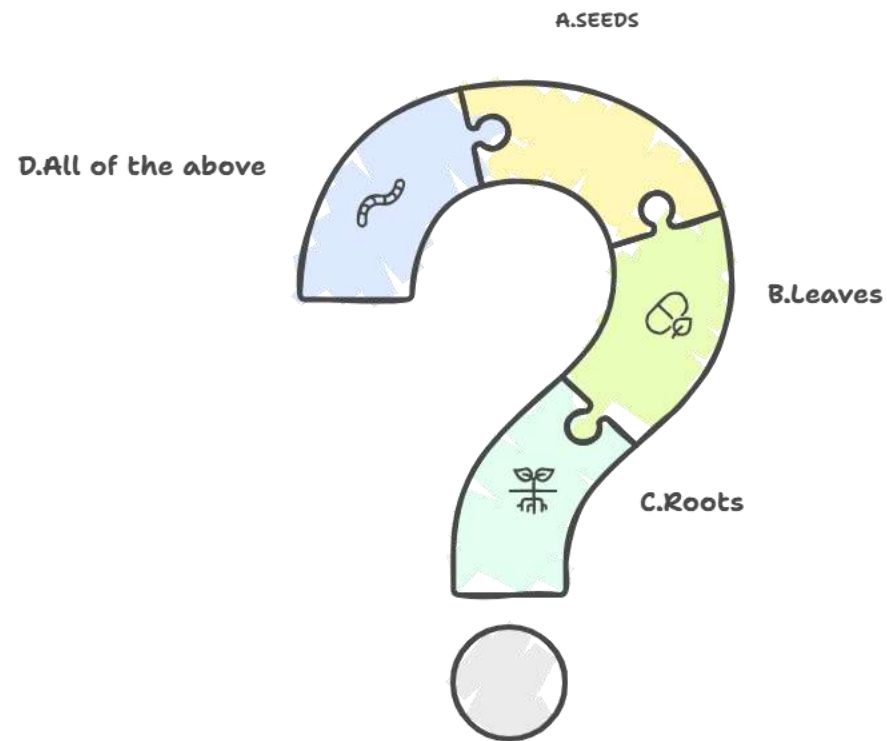
Alkaloid Characteristics



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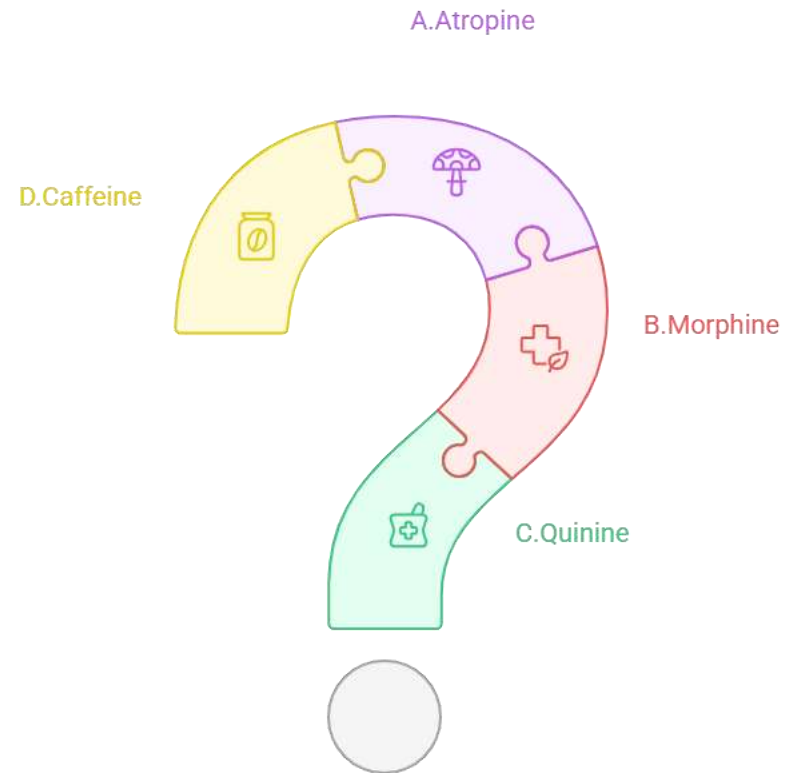
ASSESSMENT

Where are alkaloids commonly found in plants?



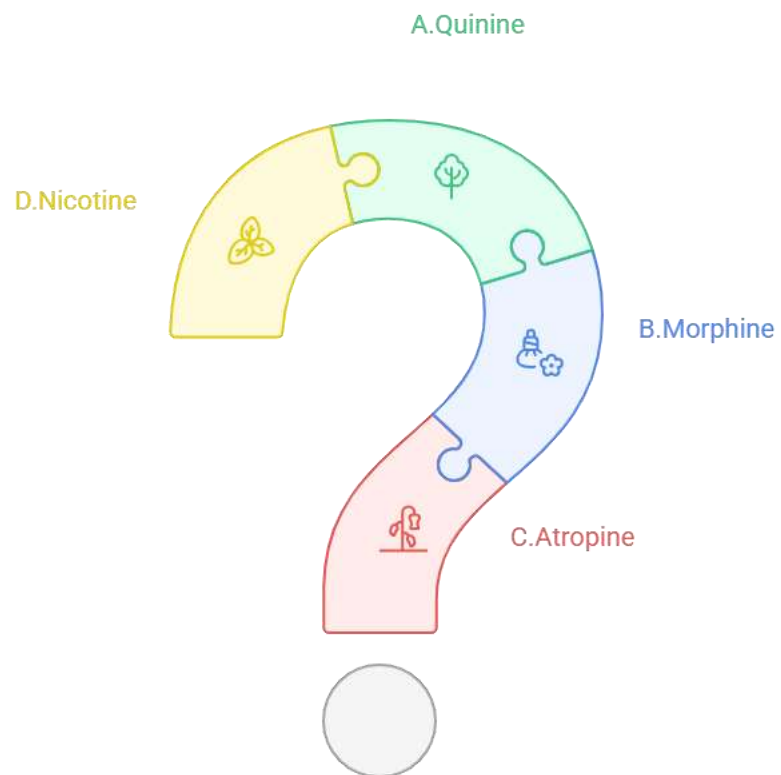
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Which alkaloid is obtained from *Papaver somniferum*?



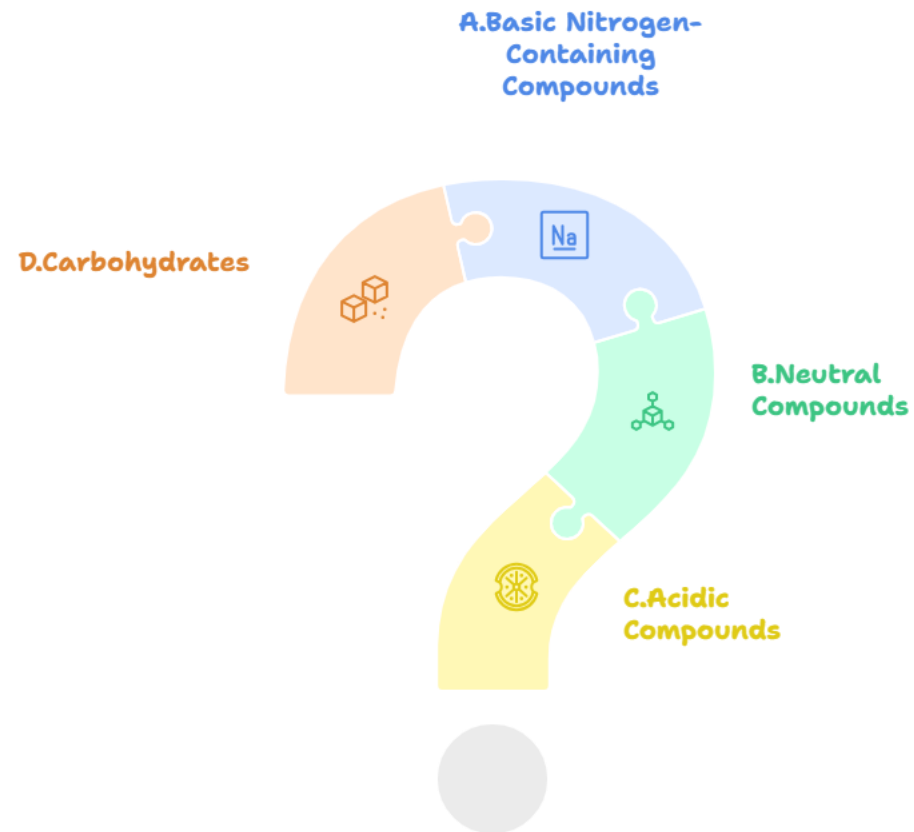
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Which alkaloid is used as an antimalarial drug?



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What is the primary chemical property of alkaloids?



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Thank You

