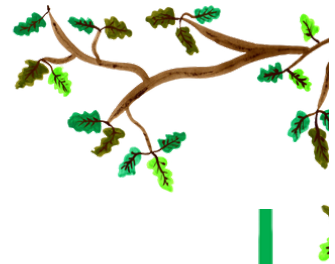




# LEAF SHAPE GUIDE



ACUMINATE



ACUTE



ARISTATE



CORDATE



CUNEATE



DELTATE



DIGITATE



ELLIPTIC



ENSIFORM



FALCATE



FLABELLATE



HASTATE



LANCEOLATE



LINEAR



LOBED



MULTIFIDE



OBOVATE



OBLANCEOLATE



OBLIQUE



OBLONG



OBOVATE



OBTUSE



ORBICULAR



OVALE



PALMATE



PANDURATE



PEDATE



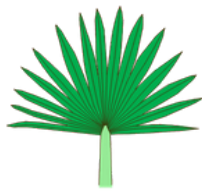
PELTATE



PINNATIFID



PINNATISECT



PLICATE



RENIFORM



RHOMBOID



SAGITTATE



SPATULATE



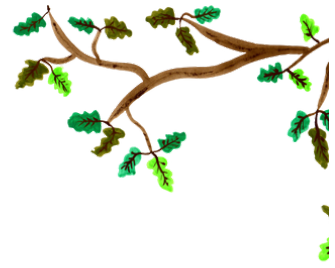
SUBULATE



TRULLATE



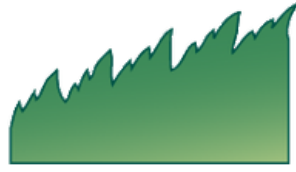
TRUNCATE



# LEAF MARGINS



ENTIRE



DOUBLY SERRATE



CILIATE



FILIFEROUS



CRENATE



LOBATE



CRENULATE



PRAEMORSE



DENTATE



SERRATE



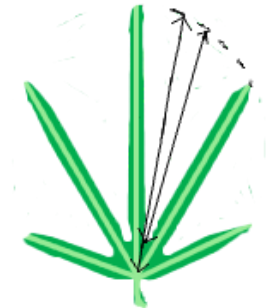
DENTICULATE



SINUATE



PALMATELY-CLEFT



PALMATELY-DIVIDED



PALMATELY-LOBED



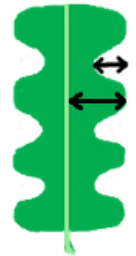
PALMATELY-PARTED



PINNATELY-DIVIDED



PINNATELY-LOBED



PINNATELY-PARTED



SERRULATE



SPINY



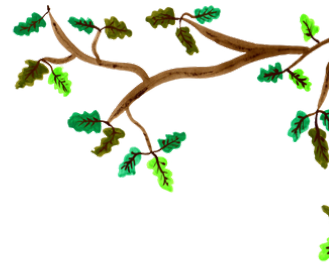
SPINOSE



UNDULATE



# LEAF VENATION



ARCUATE



CROSS-VENULATE



DICHOTOMOUS



LONGITUDINAL



PALMATE



PARALLEL



PINNATE



RETICULATE



ROTATE

# LEAF ARRANGEMENT



UNIFOLATE



OPPOSITE



ALTERNATE



TRIFOLATE



ODD PINNATE



EVEN PINNATE



ROSETTE



WHORLED



DECUSSATE

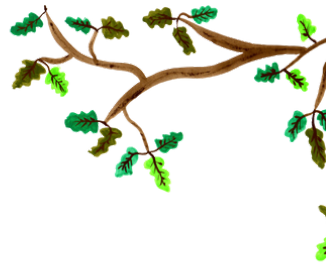


DISTICHOUS

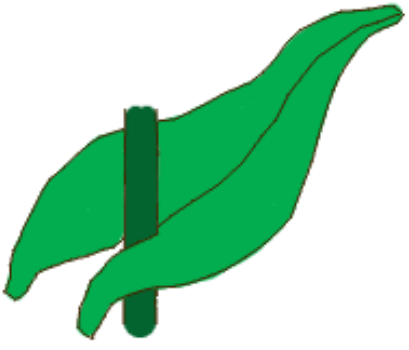


SECUND

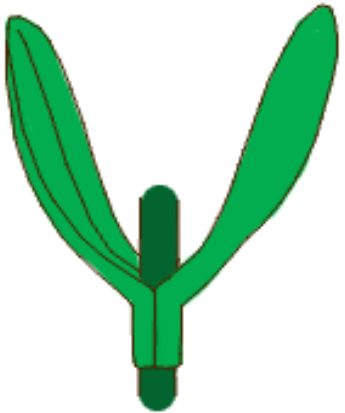




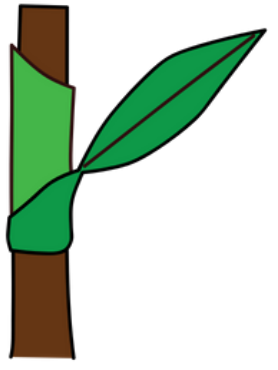
# LEAF ATTACHMENT



AMPLEXICAUL



DECURRENT



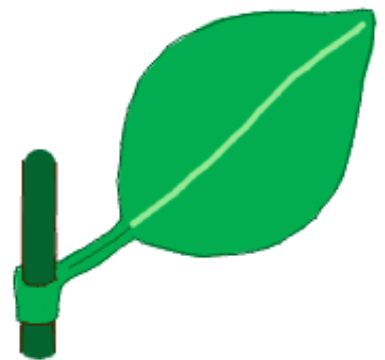
OCREA



PERFOLIATE



SESSILE



SHEATHING



PETIOLATE



CONNATE-PERFOLIATE

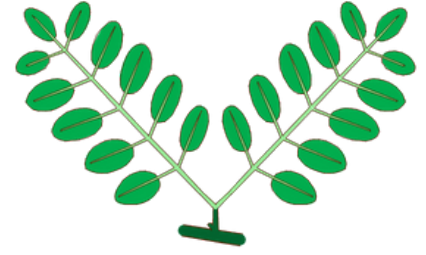
# COMPOUND LEAVES



GEMINATE



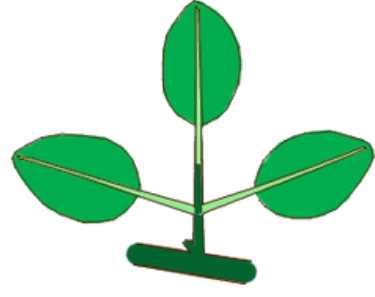
BIGEMINATE



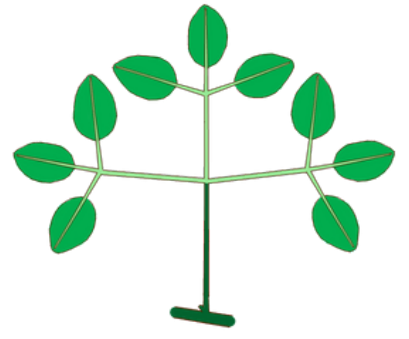
GEMINATE PINNATE



BIPINNATE



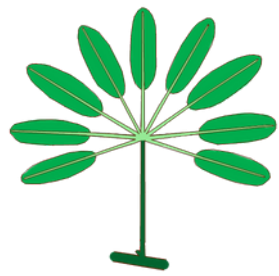
TRIFOLIATE



BITERNATE



TRIPINNATE



PALMATELY COMPOUND

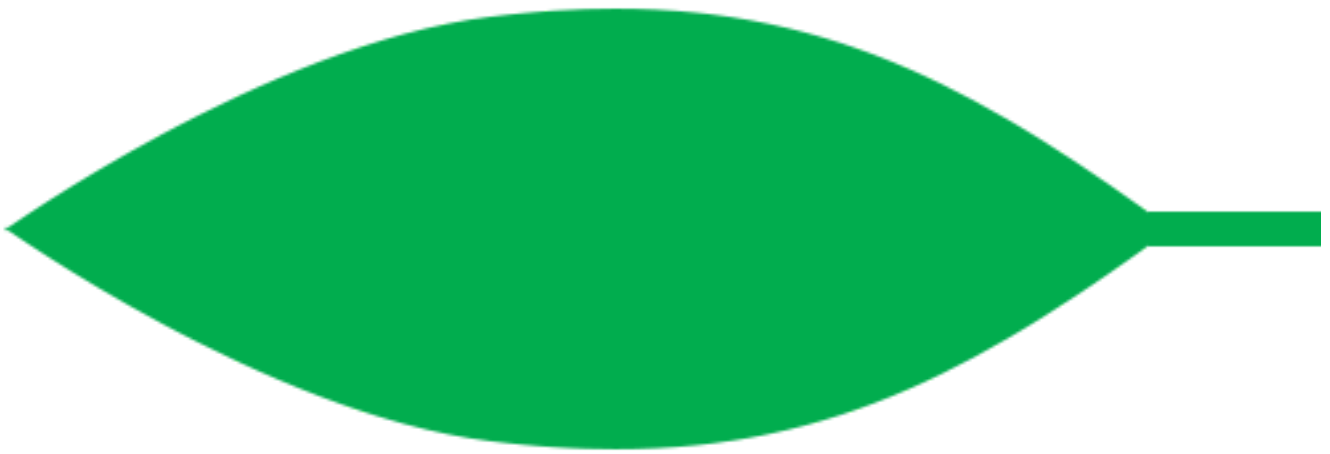


# Leaf Shape



# ACUMINATE

Tapering to a long point  
in a concave manner.



# ACUTE

Pointed, having a short sharp apex angled less than  $90^\circ$ .





# ARISTATE

Ending in a stiff, bristle-like point.



# CORDATE

Heart-shaped, with the petiole or stem attached to the notch.



# CUNEATE

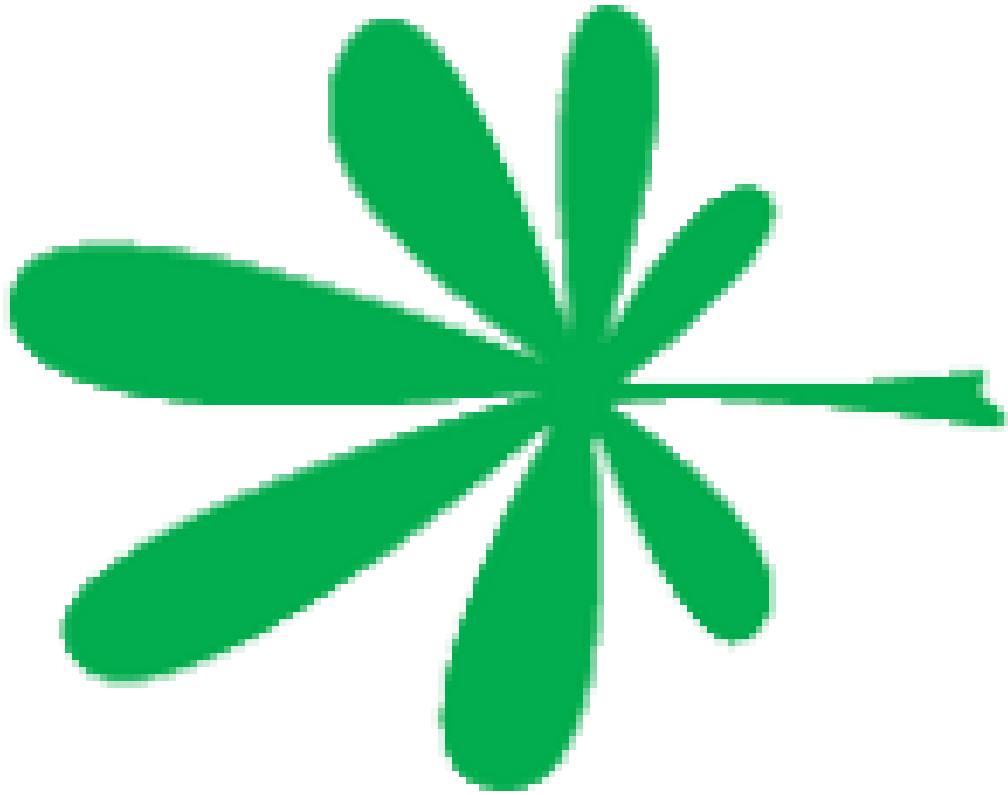
Triangular, wedge-shaped, stem  
attaches to point.



# DELTATE

Shaped like Greek letter Delta,  
triangular, stem attaches to

-:|-



# DIGITATE

With finger-like lobes, similar to palmate.





# ELLIPTIC

Oval, with a short or no point.



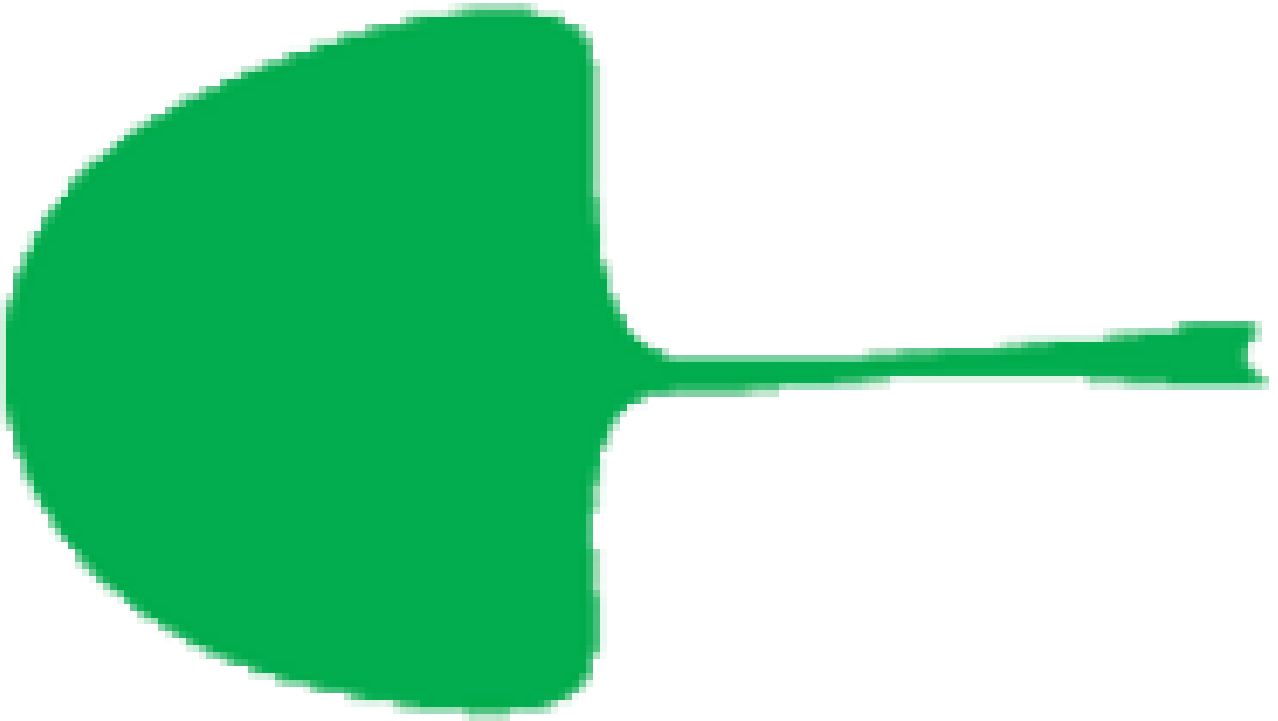
# ENSIFORM

Shaped like a sword, long and narrow with a sharp pointed tip.



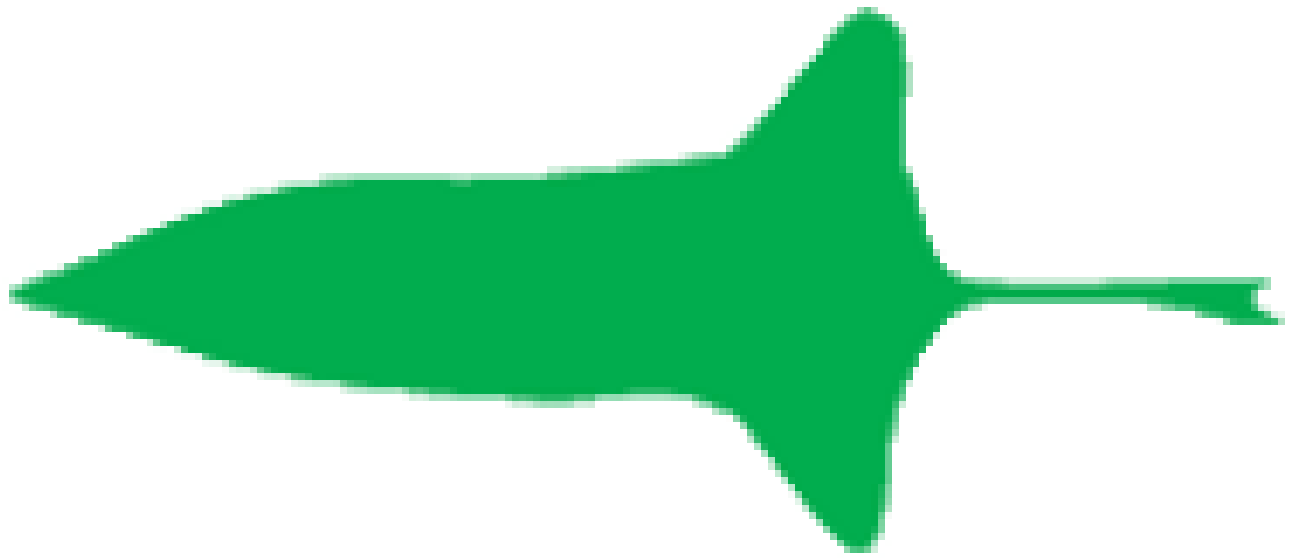
# FALCATE

Shaped like a sword, long and narrow with a sharp pointed tip.



# FLABELLATE

Semi-circular, or fan-like.



# HASTATE

Spear-shaped: Pointed, with barbs, shaped like a spear point, with flaring pointed lobes at the base.





# LANCEOLATE

Long, wider in the middle, shaped like a lance tip.



LINEAR

Long and very narrow like a blade of grass.



# LOBED

Being divided by clefts, may be pinnately lobed or palmately lobed.



MULTIFIDE

Cleft into many parts or lobes.



# OBCORDATE

Heart-shaped, stem attaches at the tapering end.





# OBLANCEOLATE

Much longer than wide and with the widest portion near the tip, reversed lanceolate.



# OBLIQUE

Asymmetrical leaf base, with one side lower than the other.



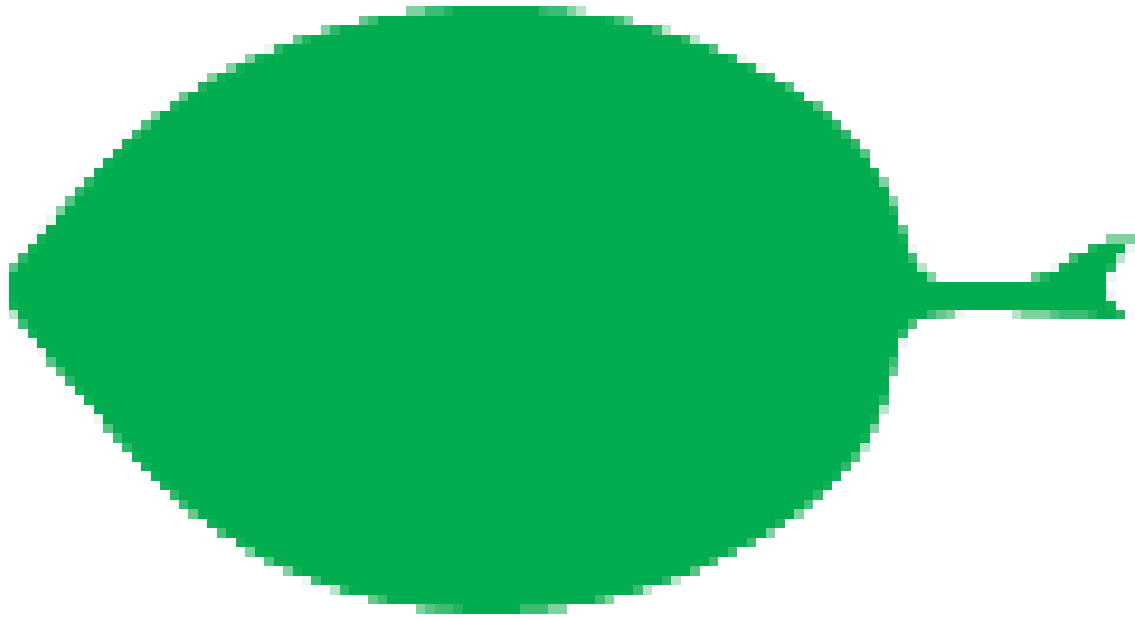
# OBLONG

Having an elongated form with slightly parallel sides, roughly rectangular.



# OBOVATE

Teardrop-shaped, stem attaches to the tapering end; reversed ovate.



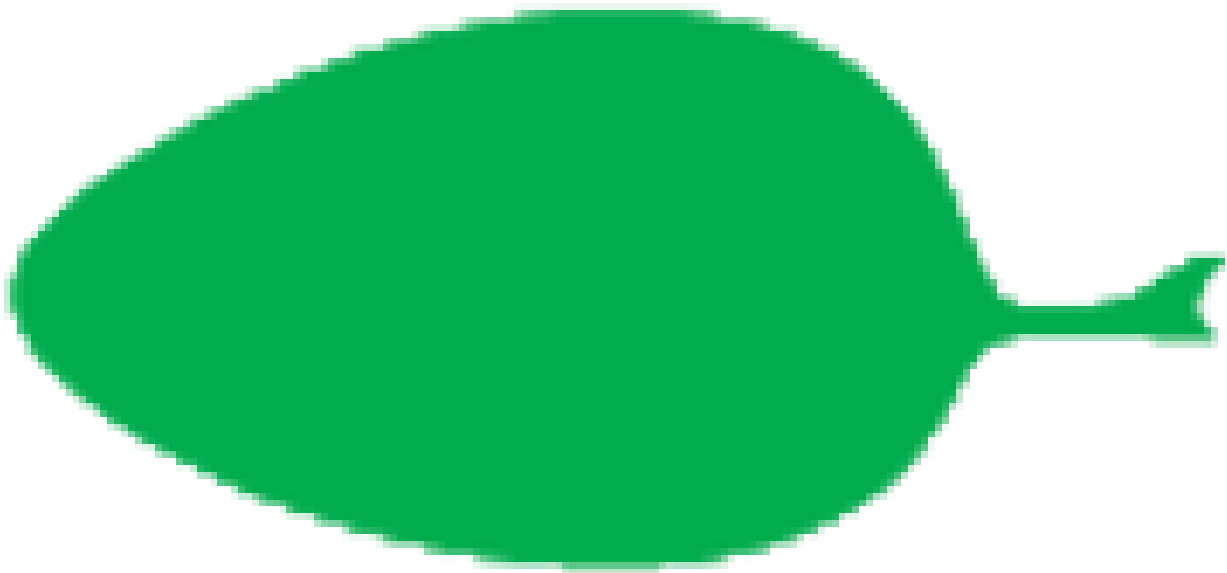
OBTUSE

Blunt, forming an angle  $> 90^\circ$ .



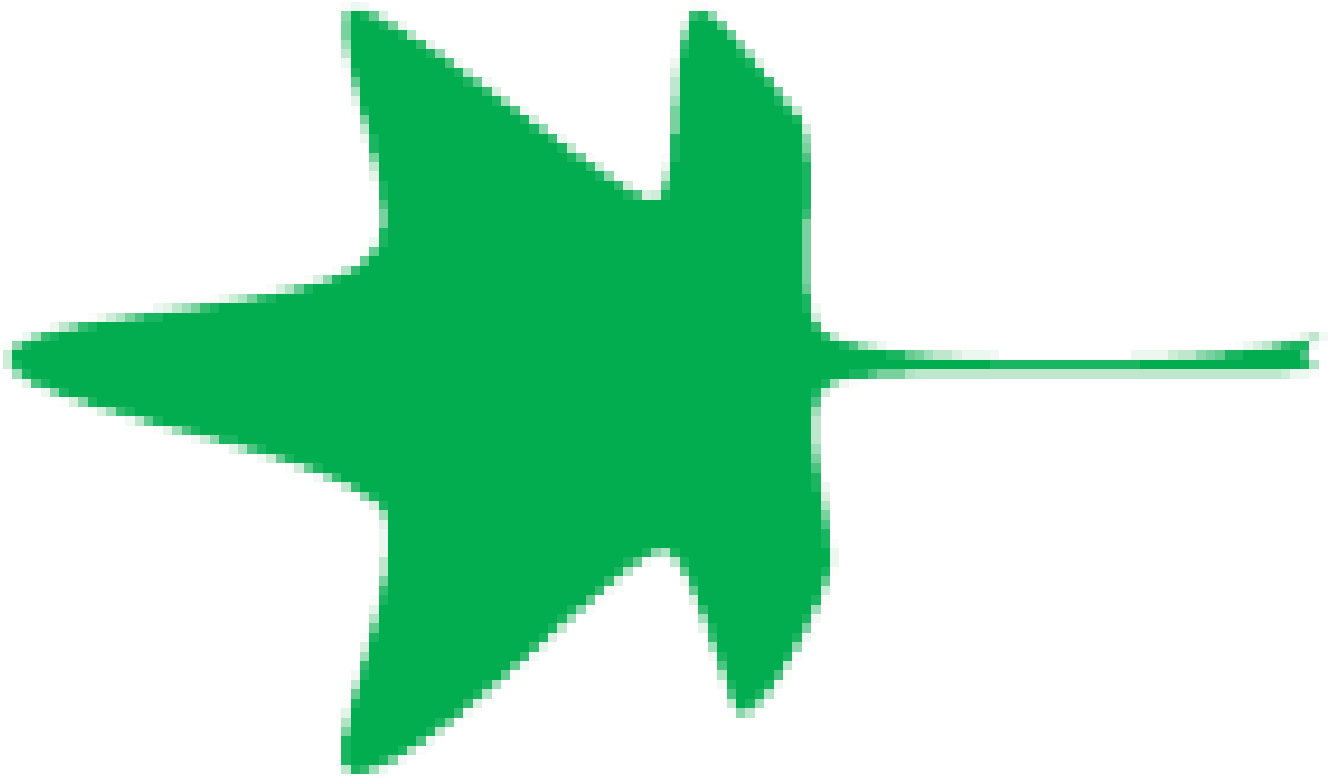
ORBICULAR

Circular.



# OVATE

Oval, egg-shaped, with a tapering point and the widest portion near the petiole.



# PALMATE

Palm-shaped, i.e., with lobes or leaflets stemming from the leaf base.





# PANDURATE

Fiddle-shaped; obovate with a constriction near the middle.



# PEDATE

Palmate, with cleft lobes.



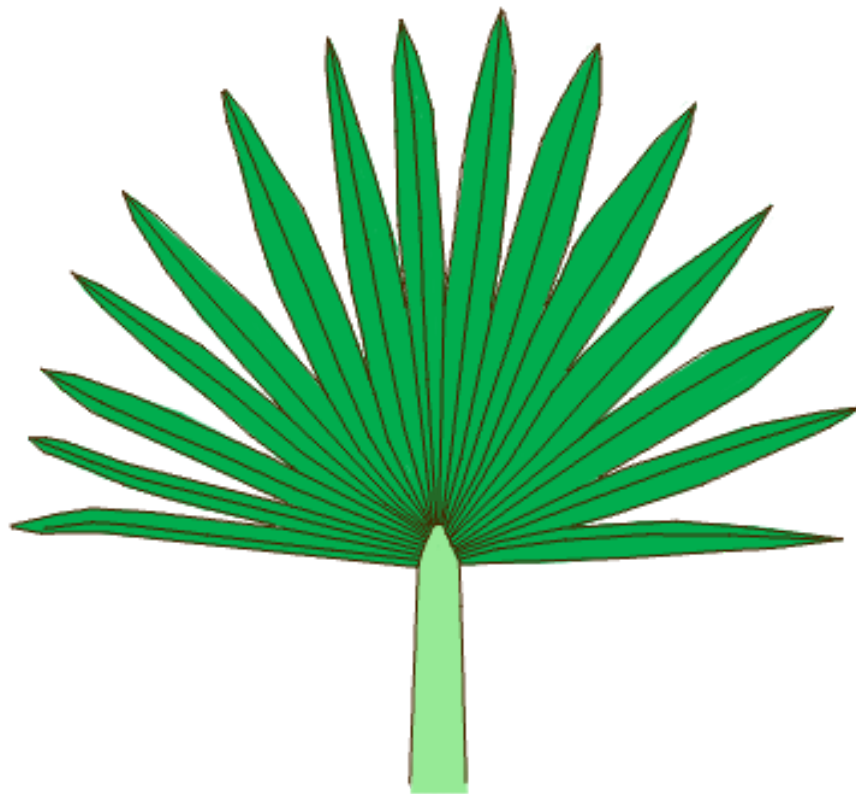
## PELTATE

A round leaf where the petiole attaches near the center. An example would be a lotus leaf.



# PINNATISECT

Having lobes with incisions that extend almost, or up to midrib.



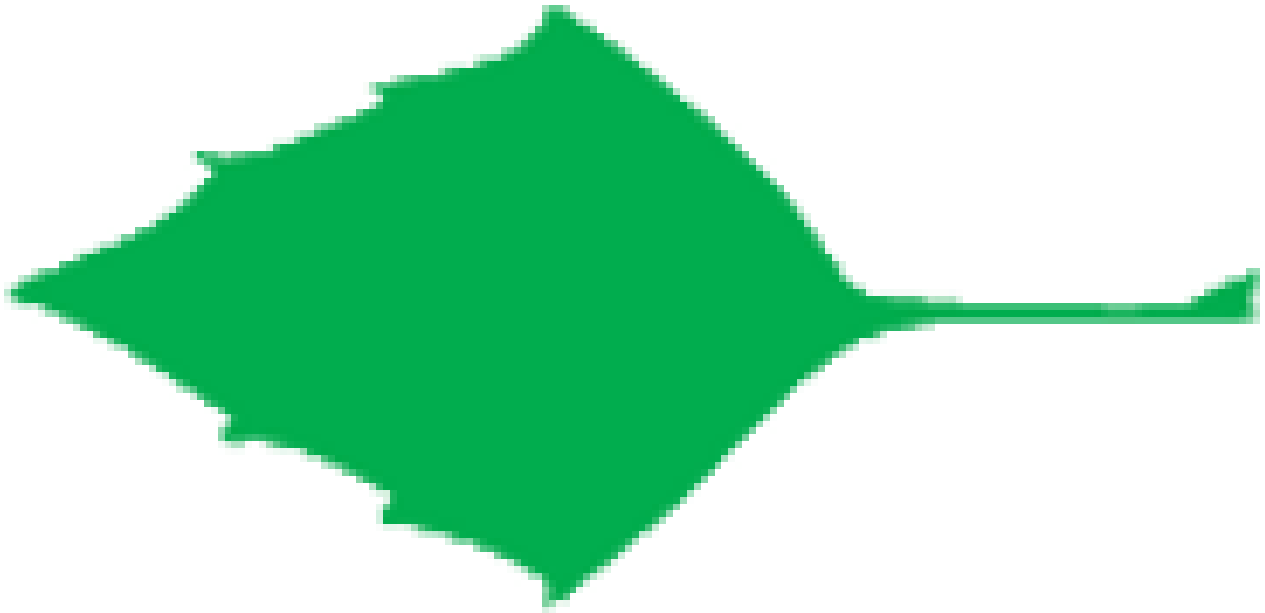
# PLICATE

Folded into pleats, usually lengthwise, serving the function of stiffening a large leaf.



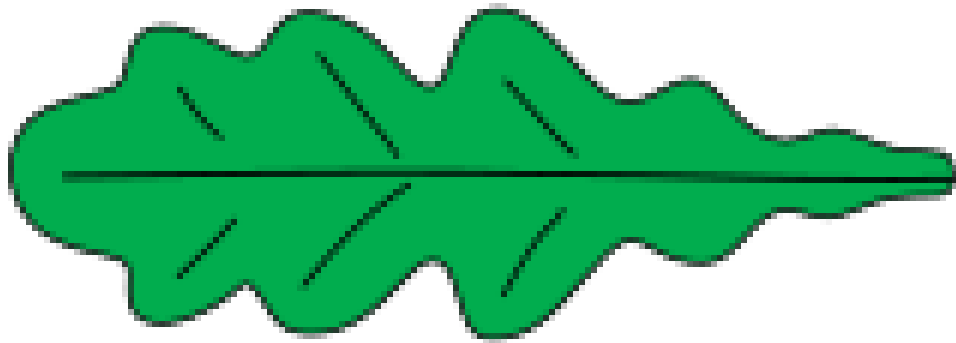
# RENIFORM

Shaped like a kidney: an oval with an inward curve on one side.



RHOMBIC

Diamond-shaped.



# PINNATIFID

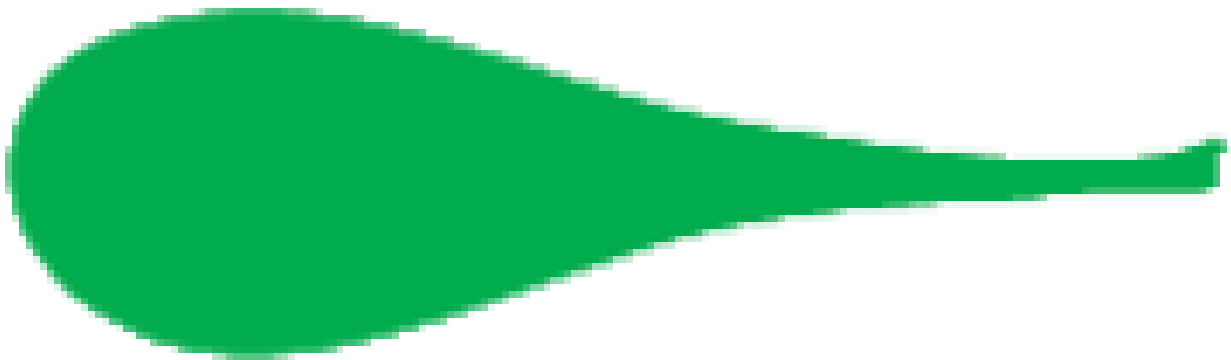
Ending in a stiff, bristle-like point.





# SAGITTATE

Arrowhead-shaped with the lower lobes folded,  
or curled downward.



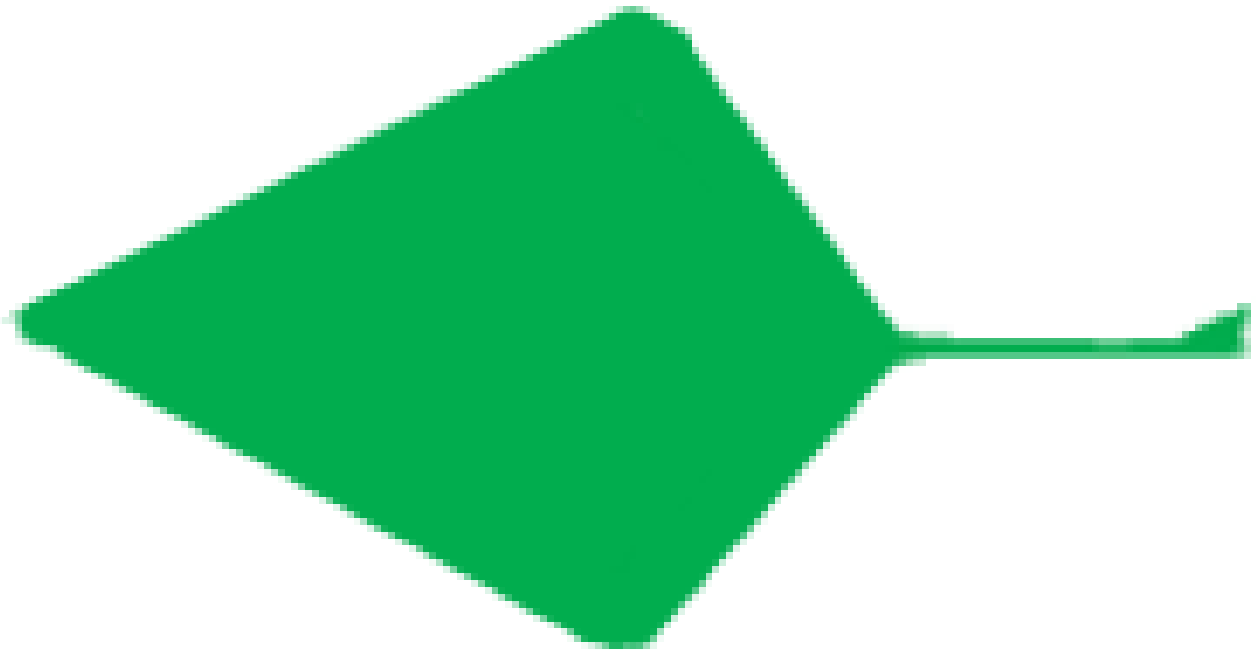
# SPATULATE

Spoon-shaped; having a broad flat end which tapers to the base.



SUBULATE

Shaped like a bricklayer's trowel



TRULLATE

Shaped like a bricklayer's  
trowel.

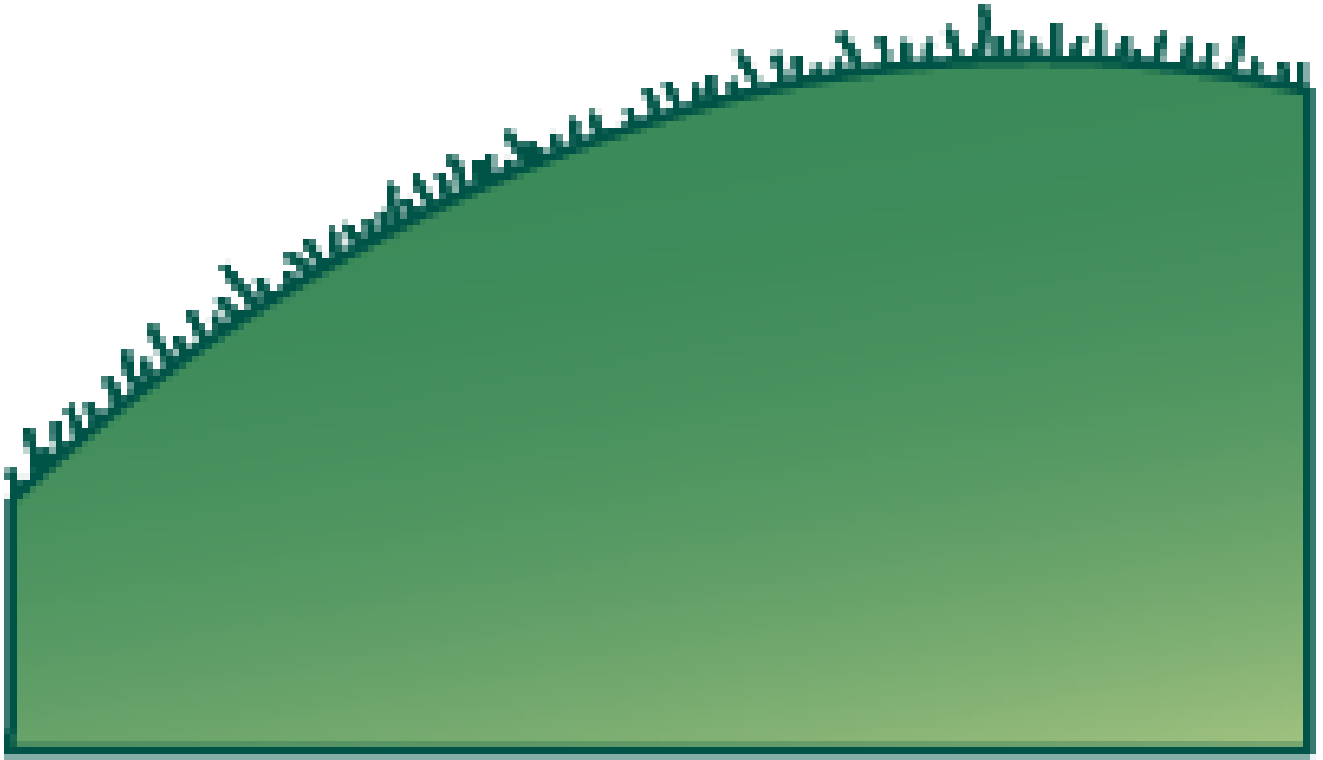


TRUNCATE

With a squared-off end.

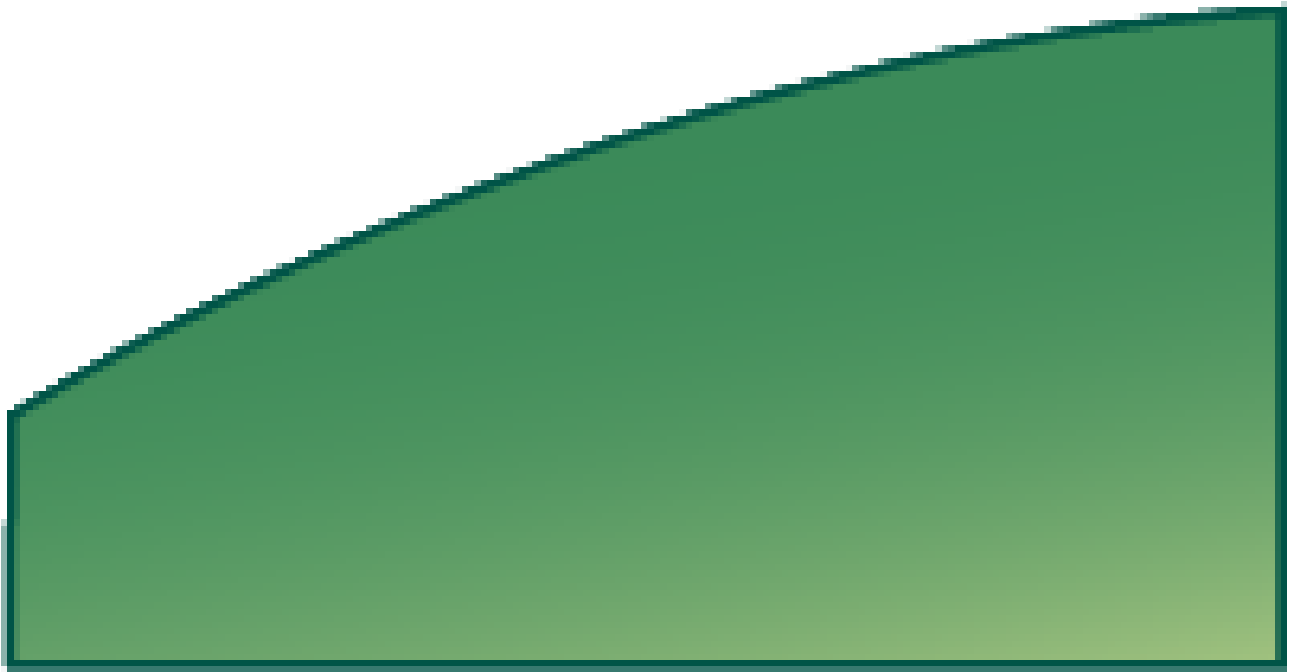


# Leaf Margins



CILIATE

Fringed with hairs.



ENTIRE

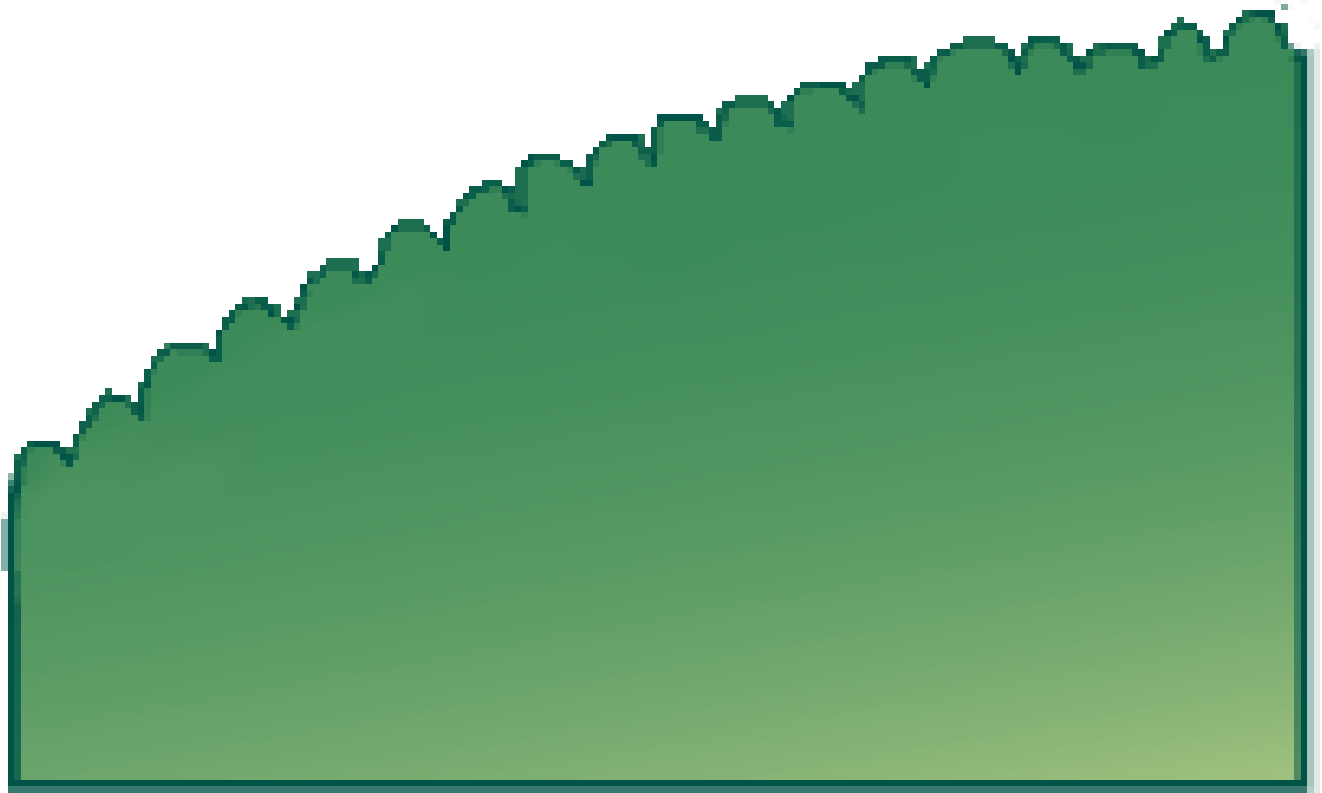
Even; with a smooth margin; without tothing.





# CRENATE

Wavy-toothed; dentate with rounded teeth.



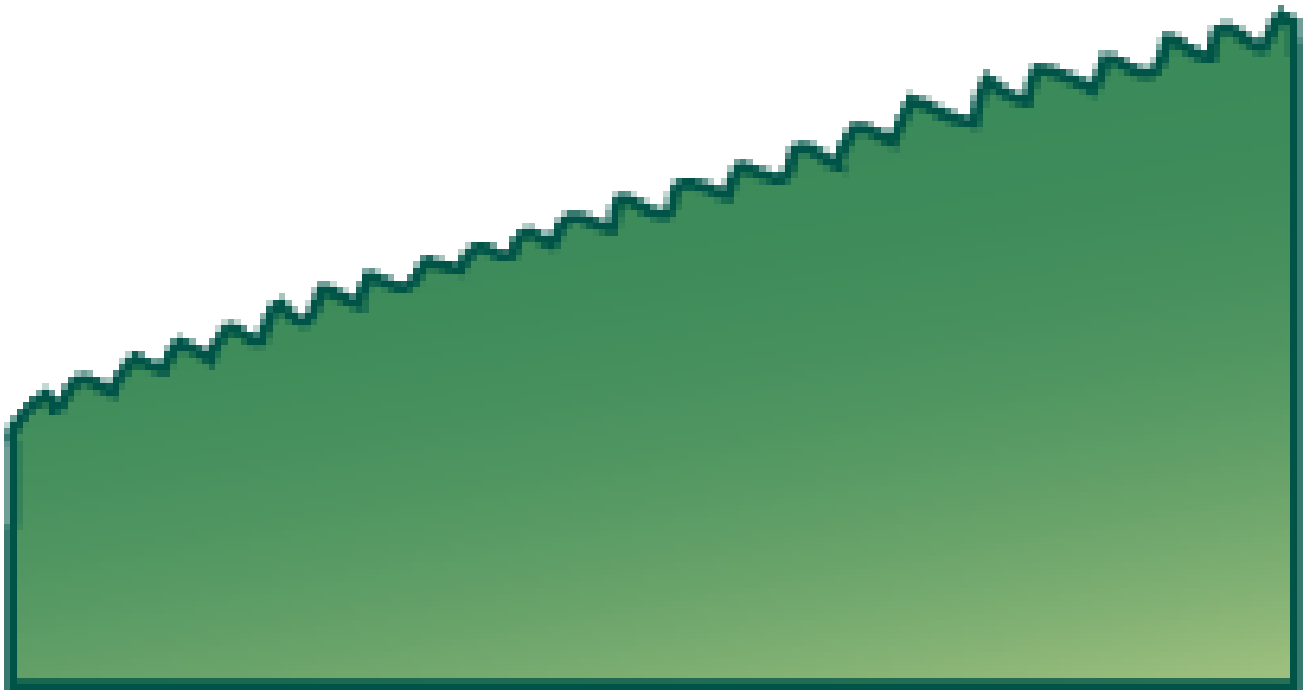
# CRENULATE

Finely crenate: Wavy-toothed; dentate with rounded teeth.



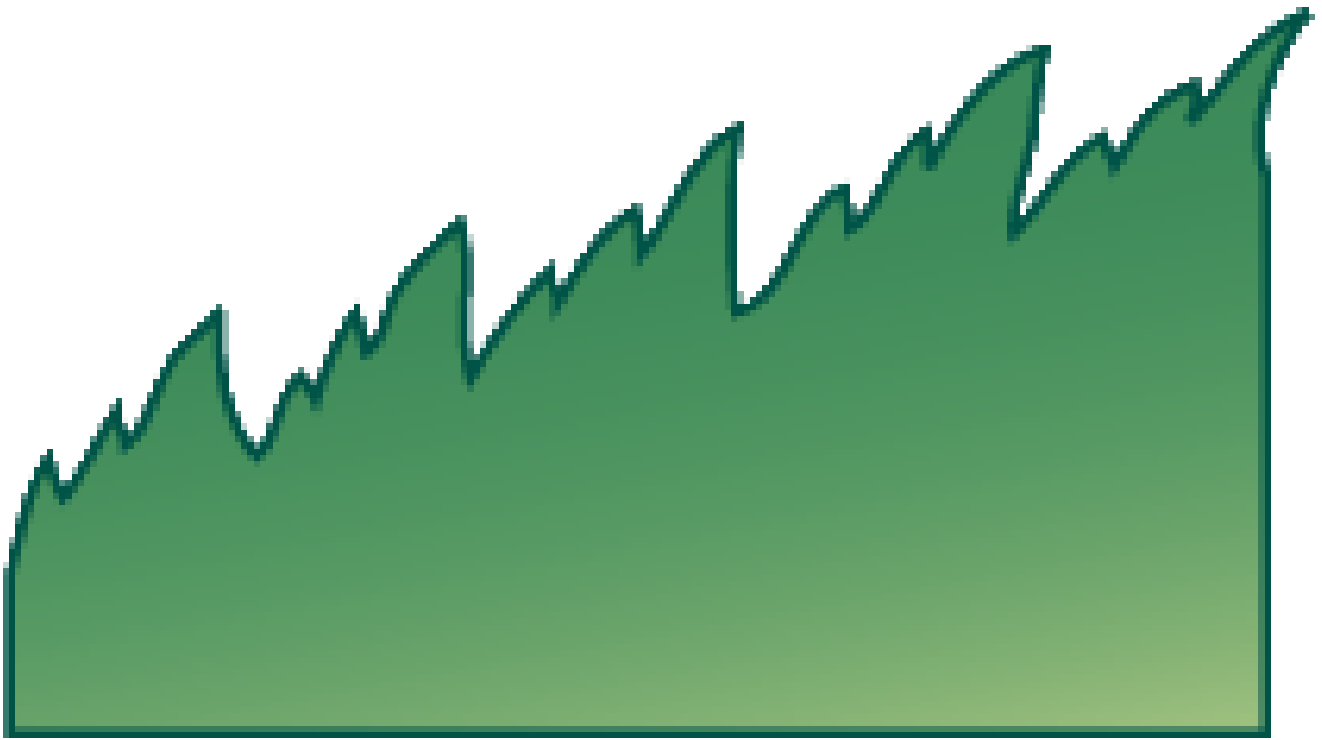
DENTATE

Toothed.



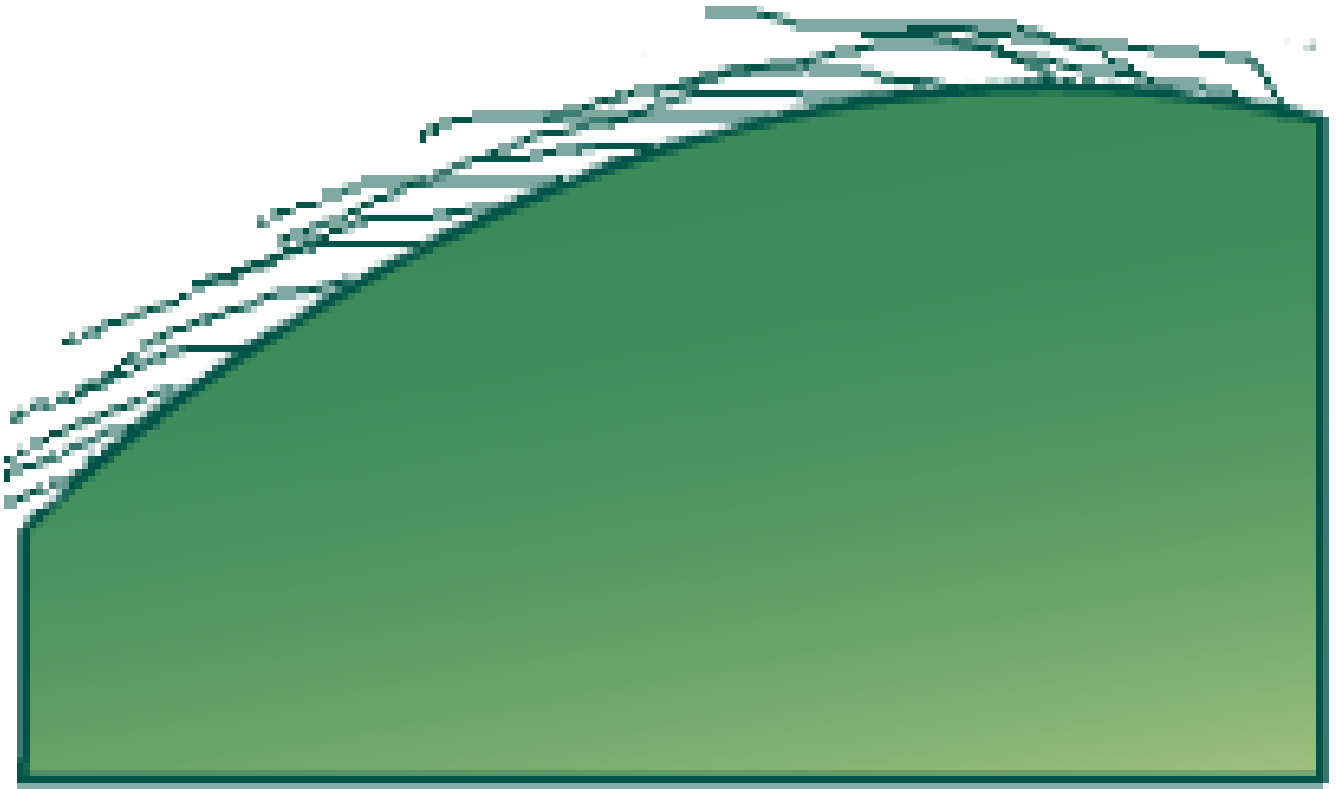
DENTICULATE

Finely toothed.



# DOUBLY-SERRATE

Each tooth bearing smaller teeth.



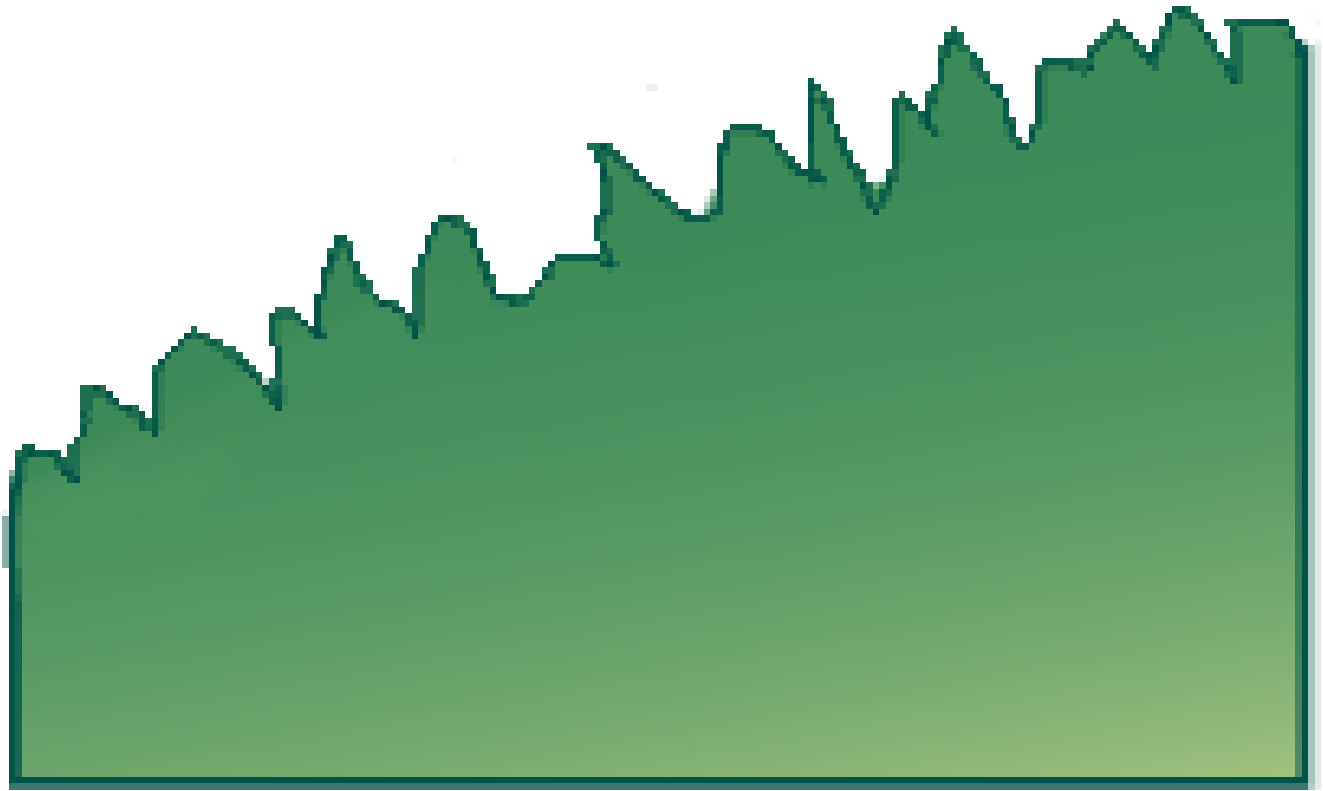
# FILIFEROUS

Slender fibers.



# LOBATE

Indented, with the indentations not reaching the center.



PRAEMORSE

Truncated and jagged.





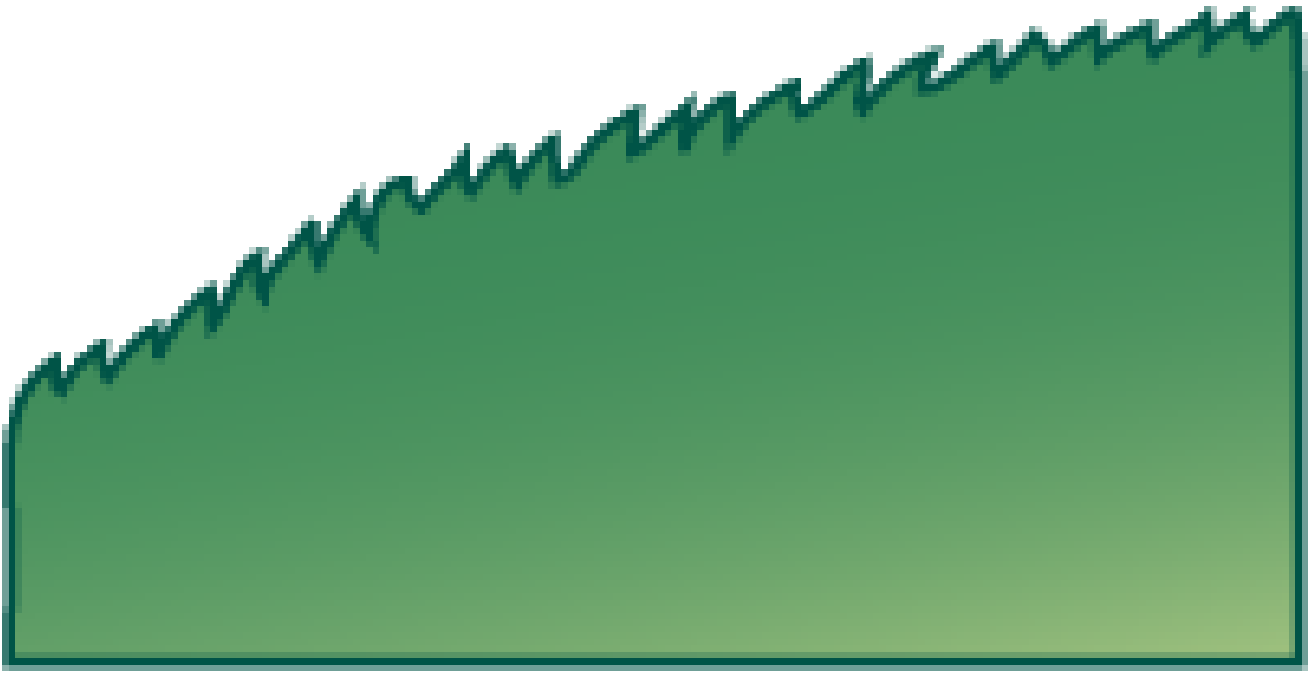
# SERRATE

Jaw-toothed; with asymmetrical teeth pointing forward.



# SINUATE

With deep, wave-like indentations; coarsely crenate.



SERRULATE

Finely serrate.



SPINOSE

Spiny.



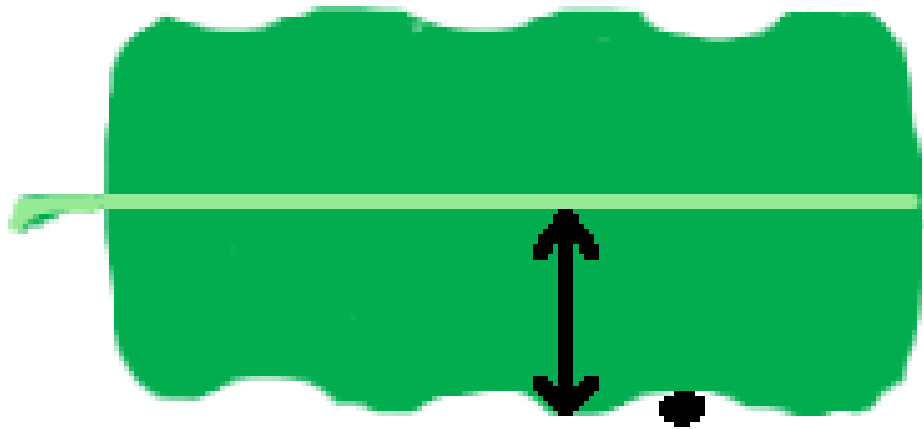
SPINY

With stiff, sharp points such as thistles.



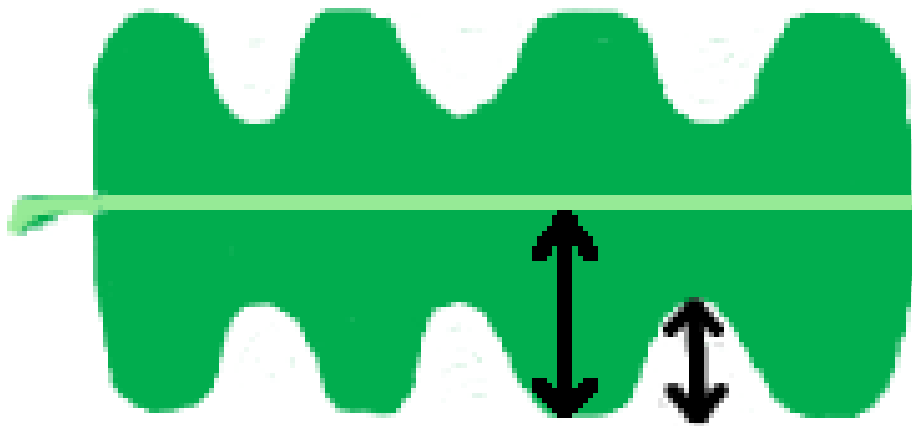
# UNDULATE

With a wavy edge, more shallow than sinuate.



# PINNATELY LOBED

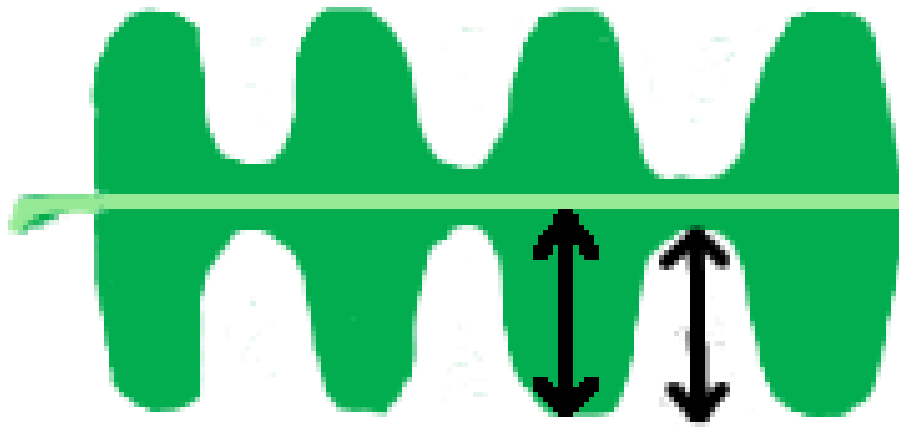
Having shallow lobes on both sides of the stem.



# PINNATELY-PARTED

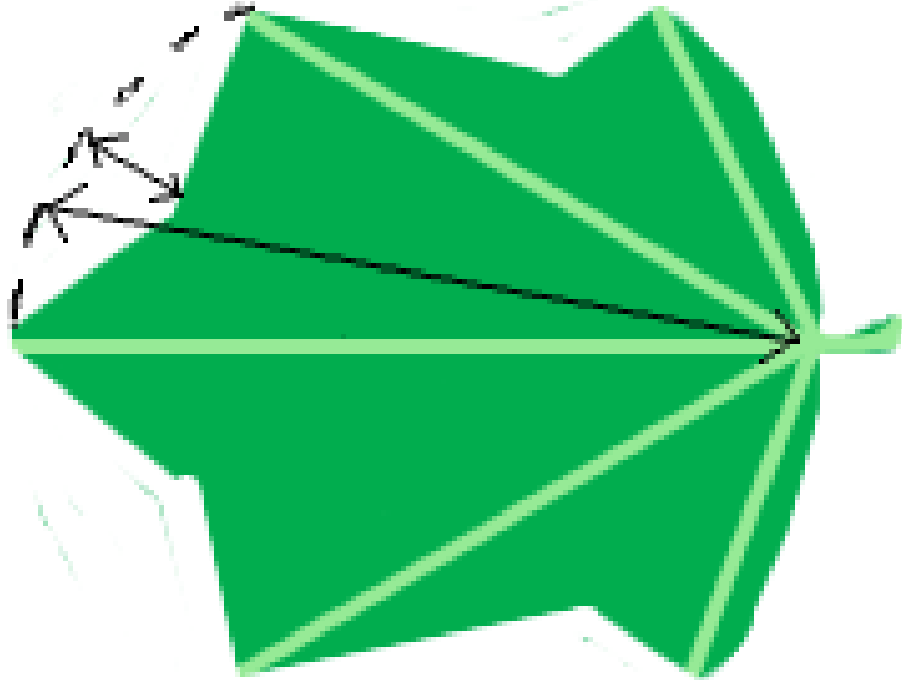
Having lobes with incisions that extend more than half-way toward the midrib.





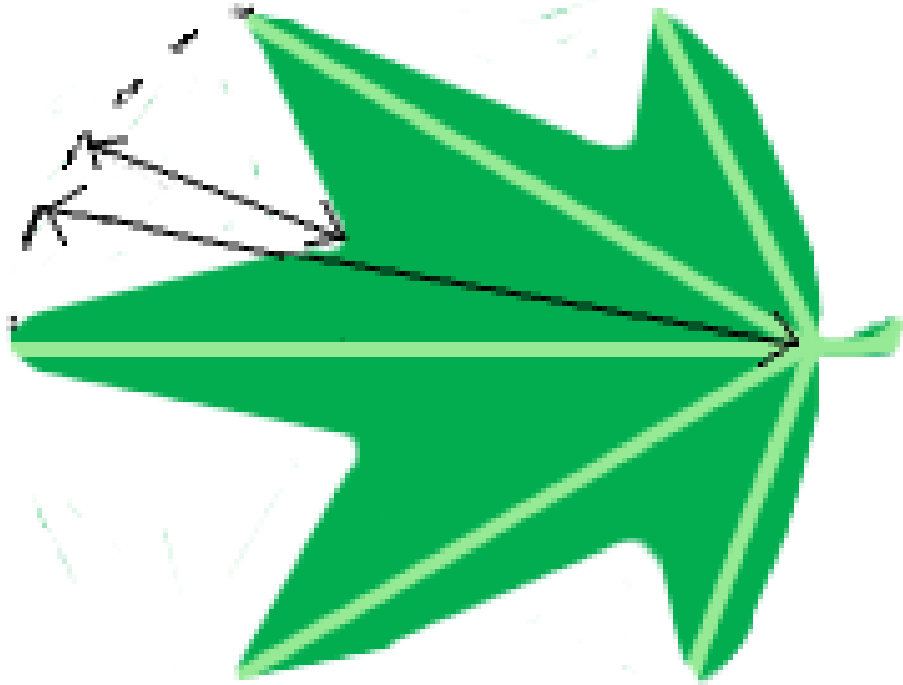
# PINNATELY-DIVIDED

Having lobes with incisions that extend almost,  
or up to midrib.



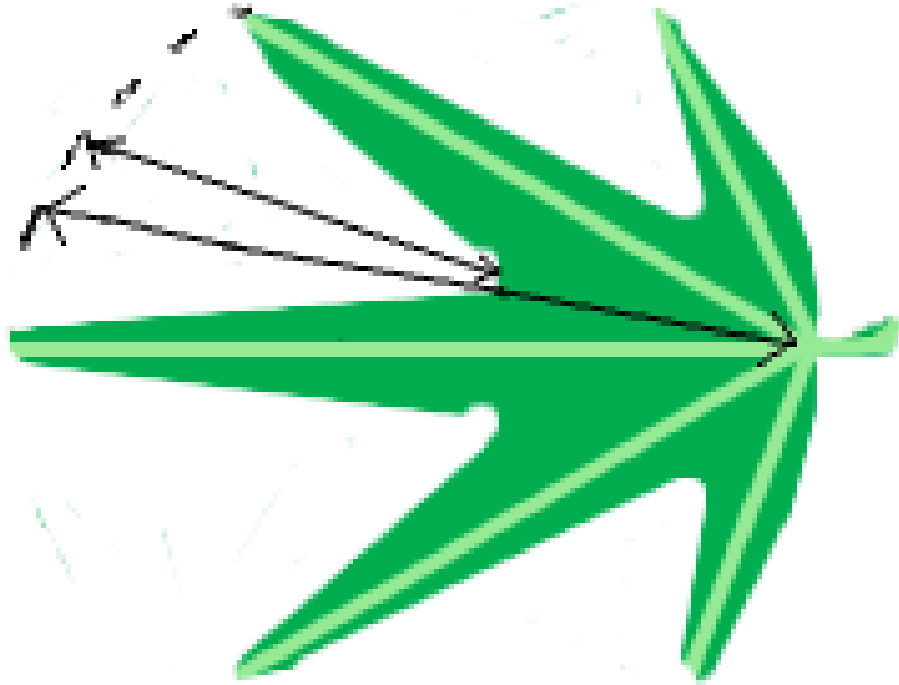
# PALMATELY-LOBED

Lobes spread radially from a point.



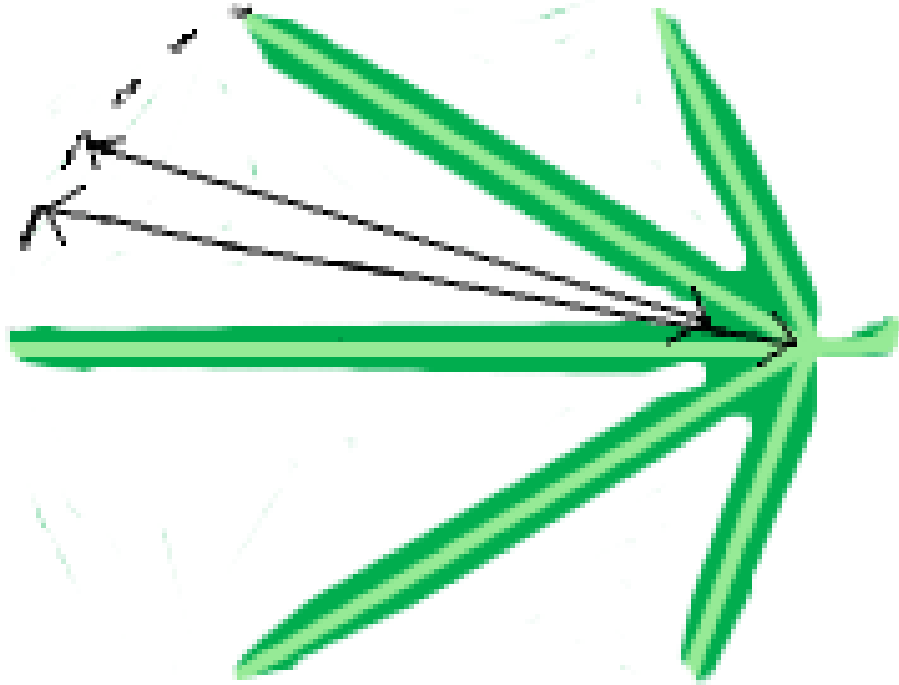
# PALMATELY-CLEFT

Palm-shaped, having lobes with incisions that extend less than half-way toward the petiole.



# PALMATELY-PARTED

Having lobes with incisions that extend over half-way toward the petiole.



# PALMATELY-DIVIDED

Having lobes with incisions that extend almost up, but not quite to the petiole.



# Leaf Venation



# ARCUATE

Secondary veins bending toward apex.



# CROSS-VENULATE

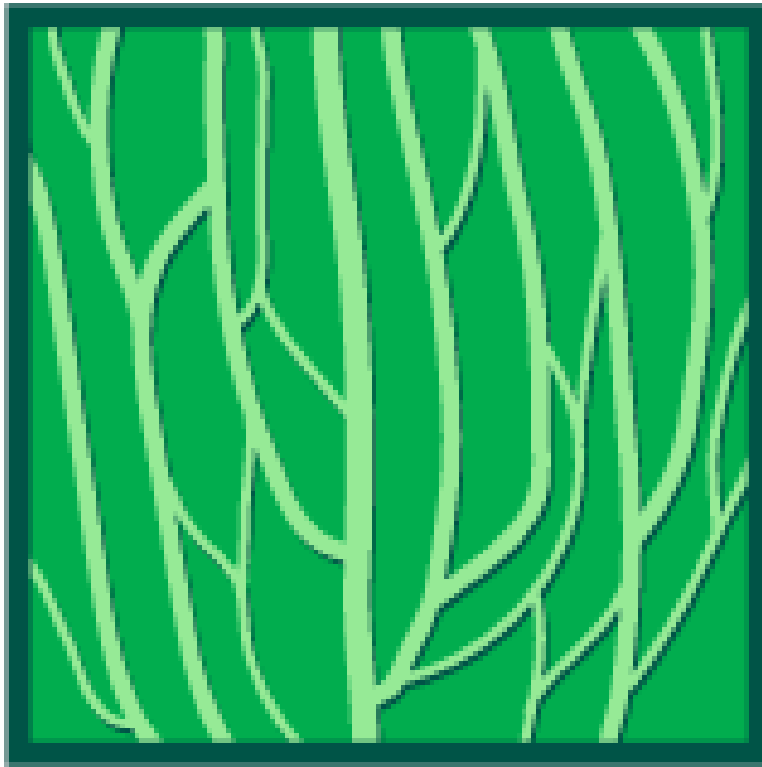
Small veins connecting secondary veins.





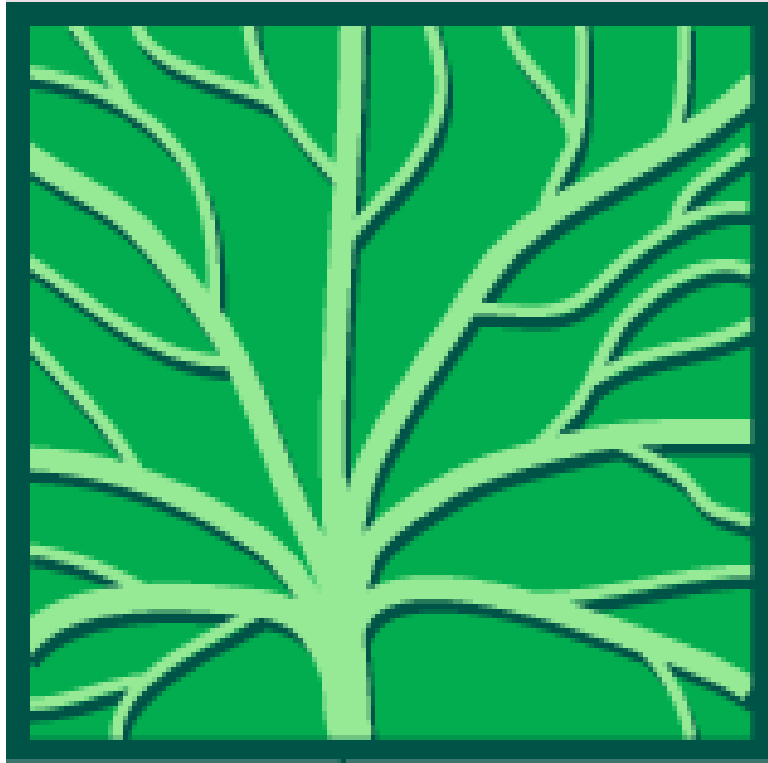
# DICHOTOMOUS

Veins branching symmetrically in pairs.



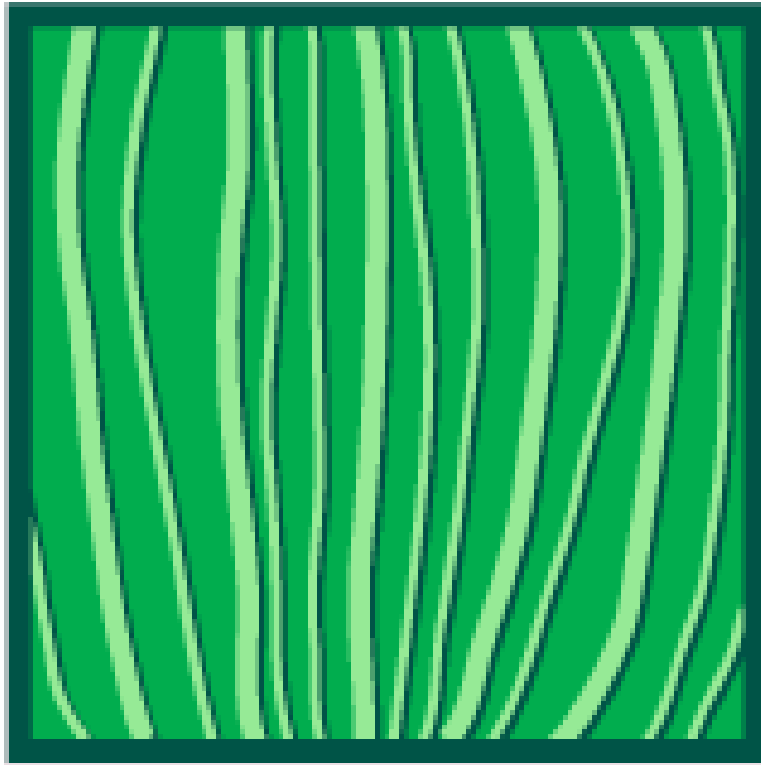
# LONGITUDINAL

Veins aligned mostly along long axis of leaf.



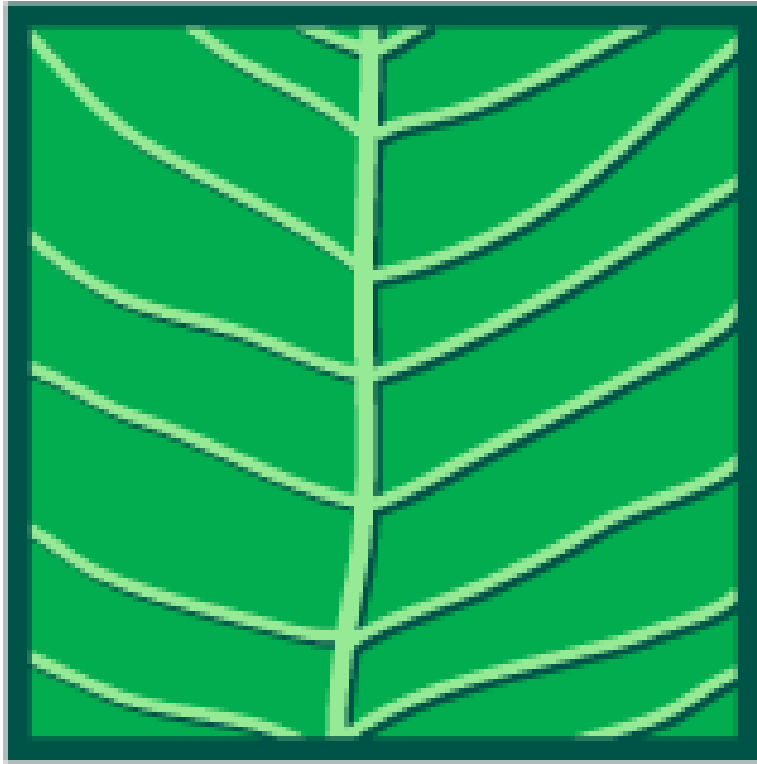
# PALMATE

Several primary veins diverging from a point.



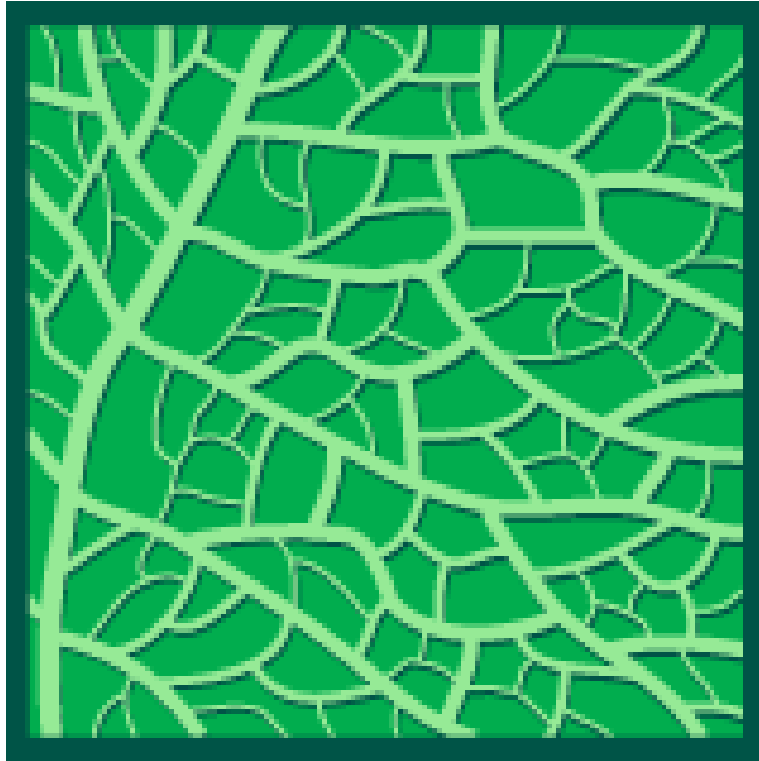
# PARALLEL

Veins arranged axially, not intersecting.



# PINNATE

Secondary veins paired oppositely.



# RETICULATE

Smaller veins forming a network.



# ROTATE

In peltate leaves, veins radiating.



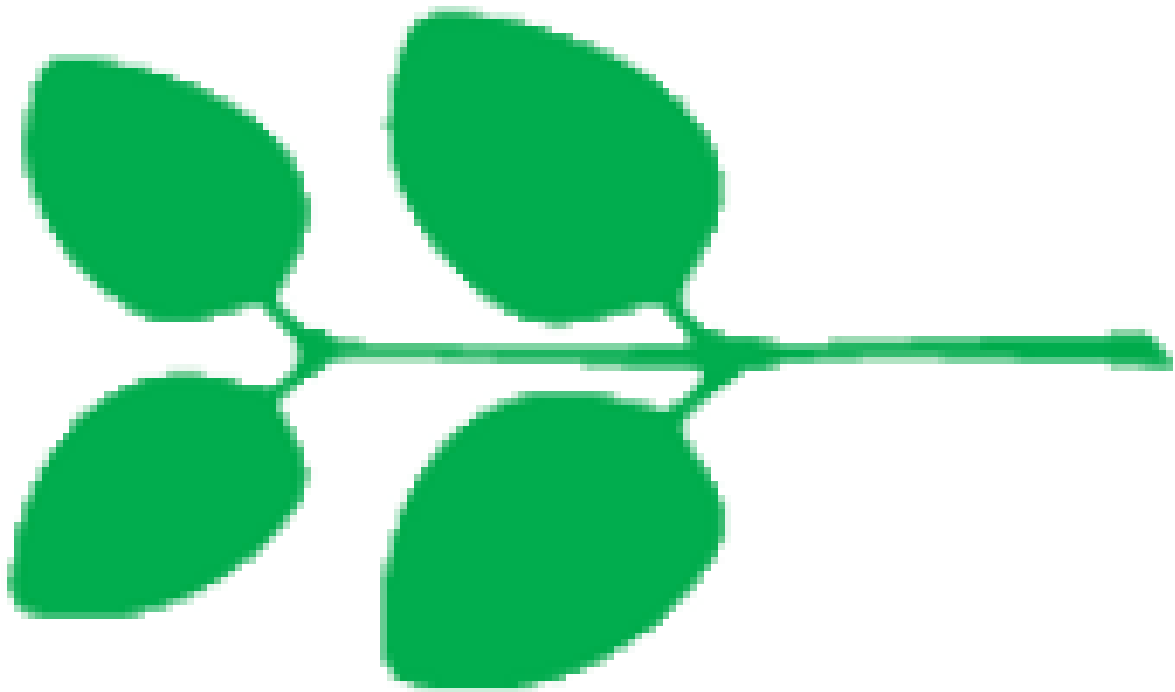
# Leaf Arrangement





# UNIFOLATE

A single leaf.



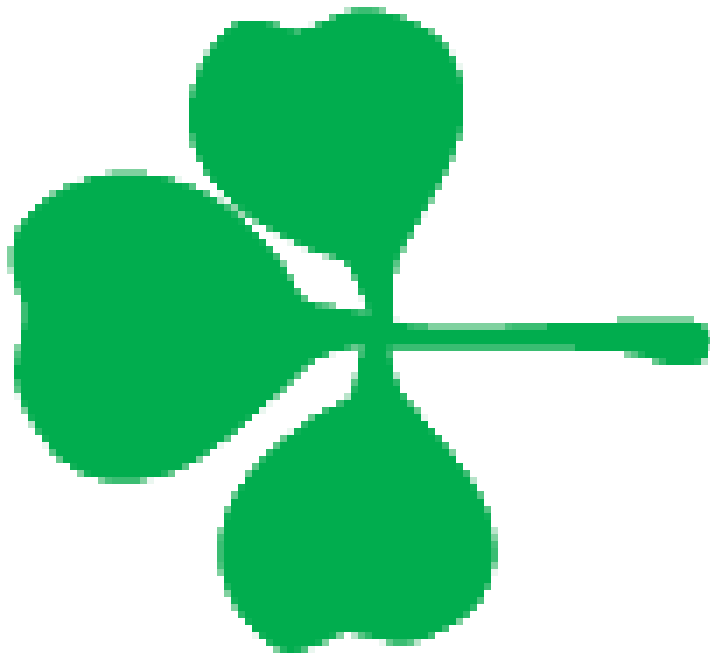
# OPPOSITE

Two leaves opposite one another at each node.



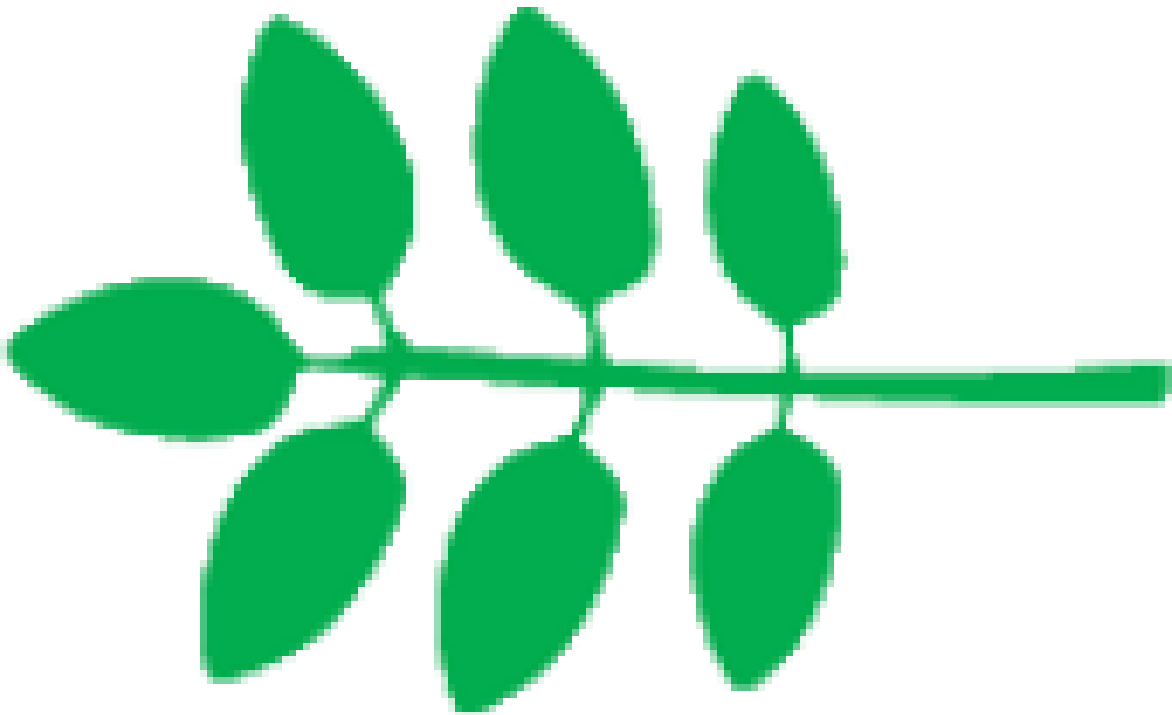
# ALTERNATE

A single leaf is attached at each node alternately along the stem.



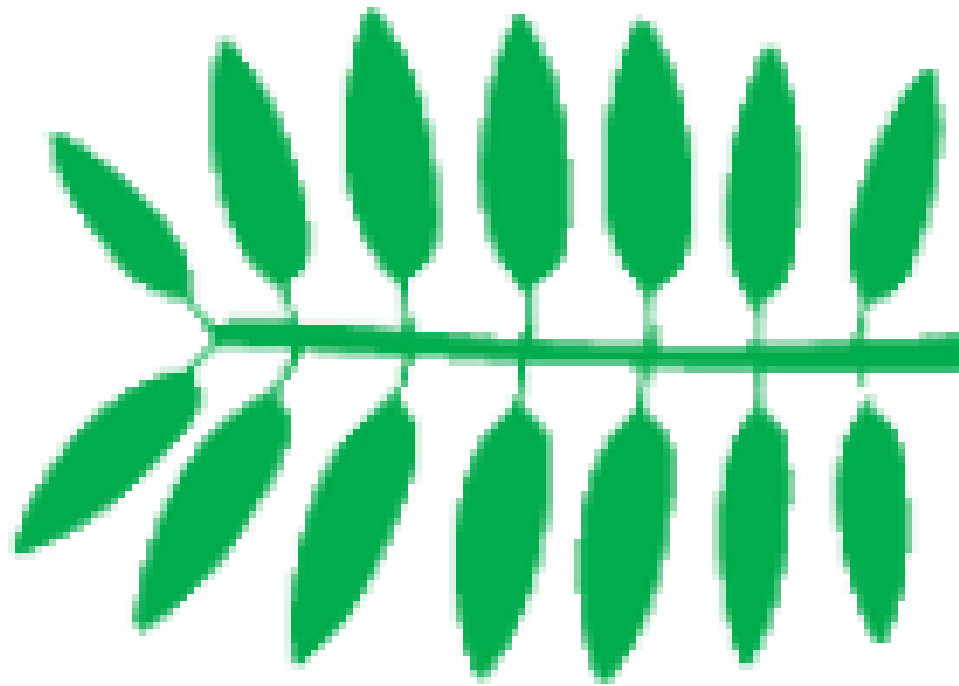
# TRIFOLATE

Having three leaflets.



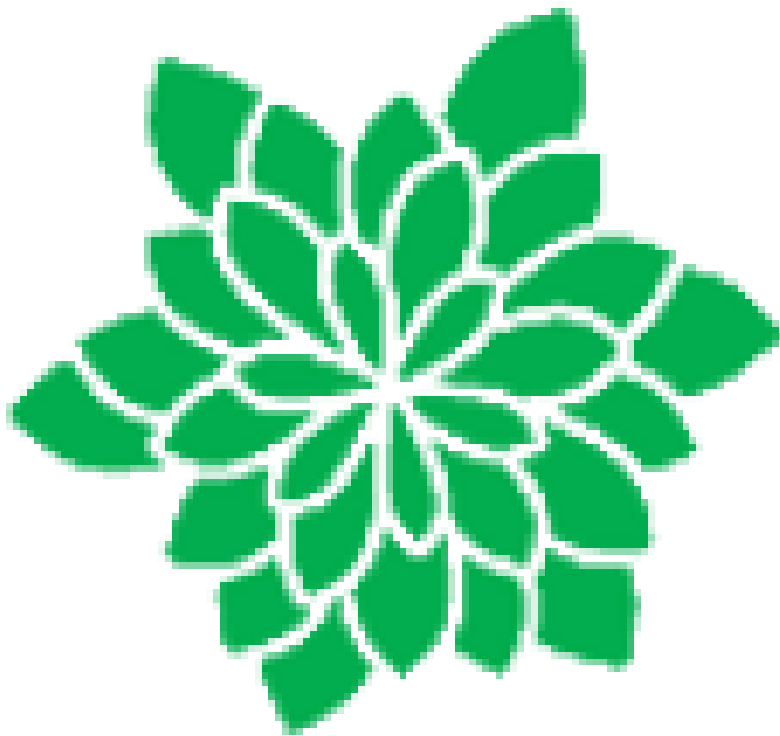
## ODD PINNATE

Odd number of leaves arranged on opposite sides of the stem and ending with a terminal leaf.



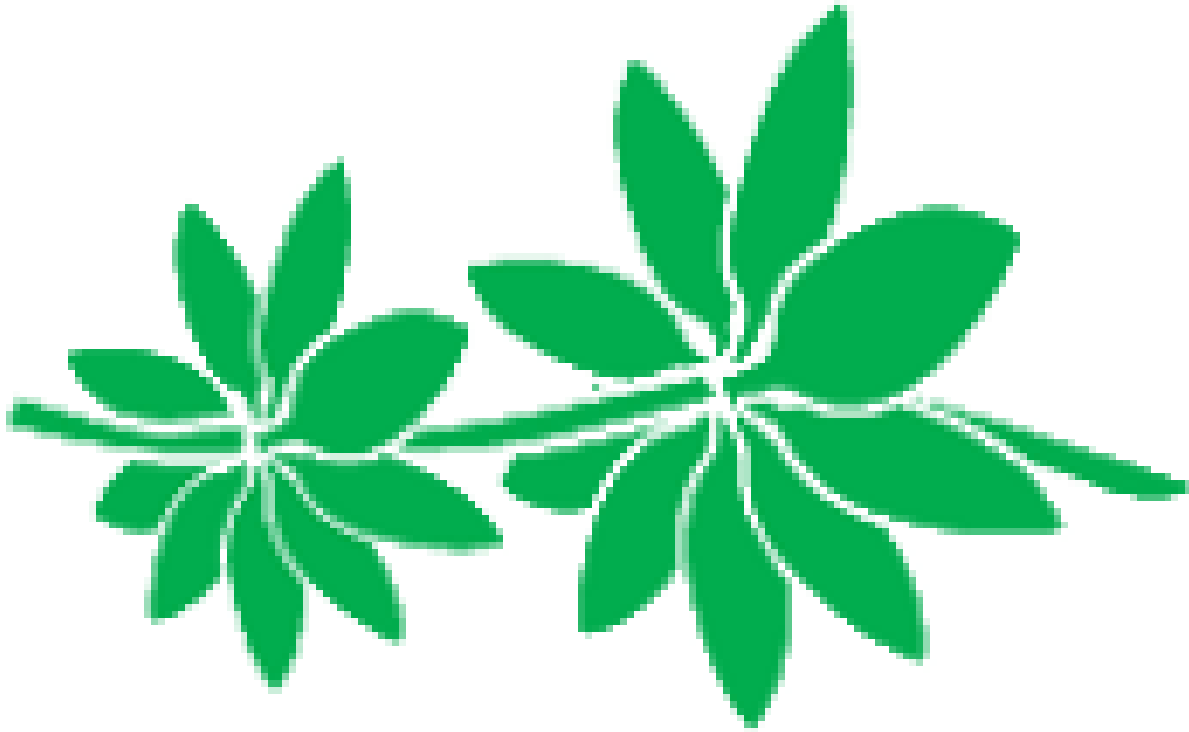
## EVEN PINNATE

Even number of leaves arranged on opposite sides of the stem and no terminal leaf.



# ROSETTE

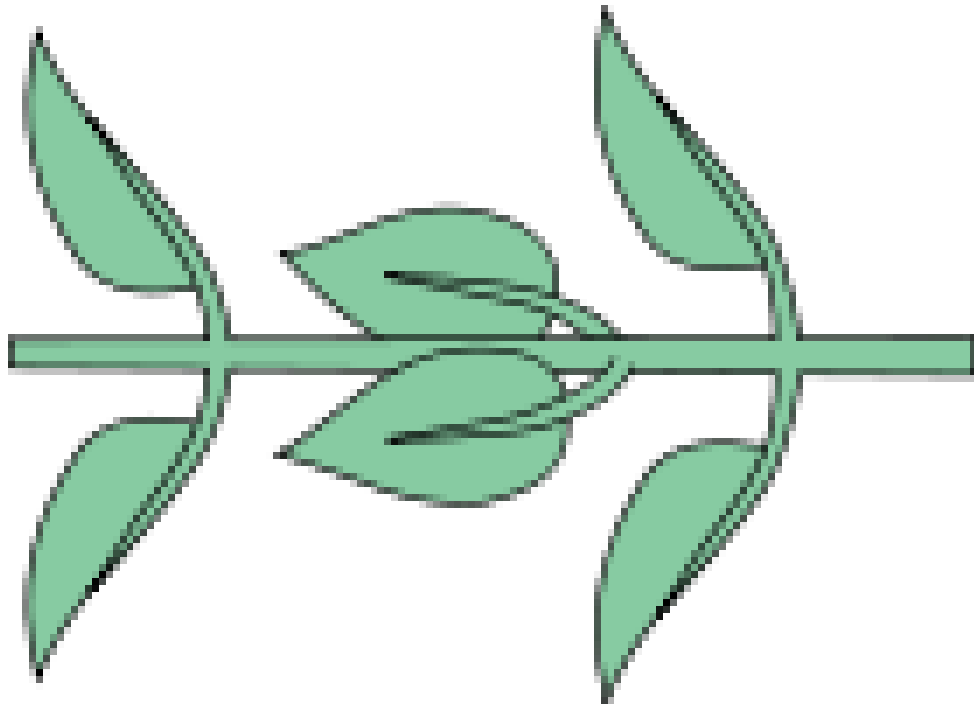
Leaves in a radial pattern originating from the center.



# WHORLED

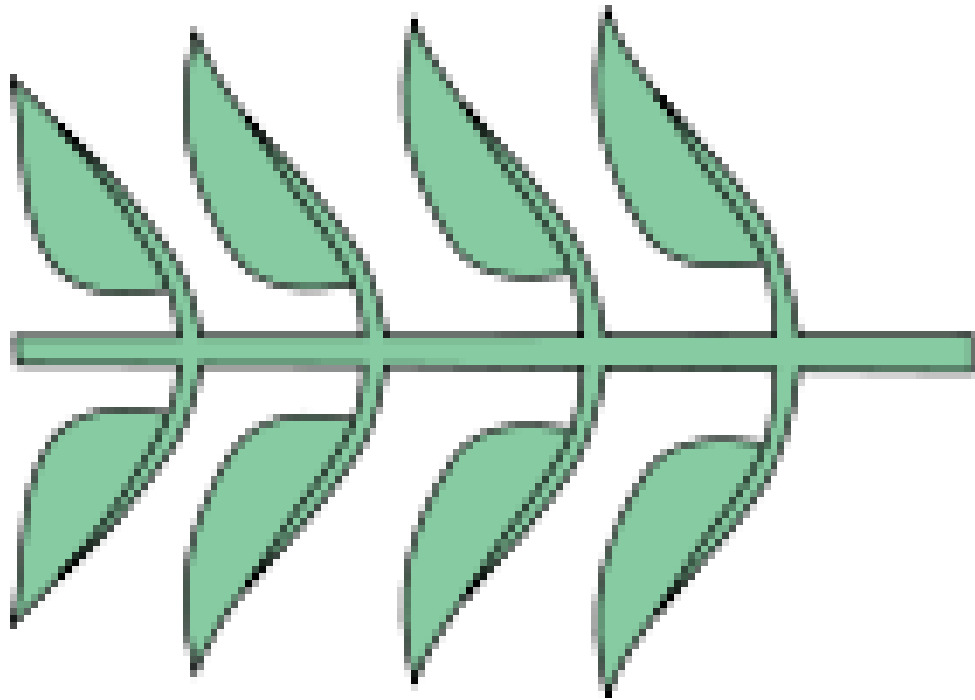
Three or more leaves at a node.





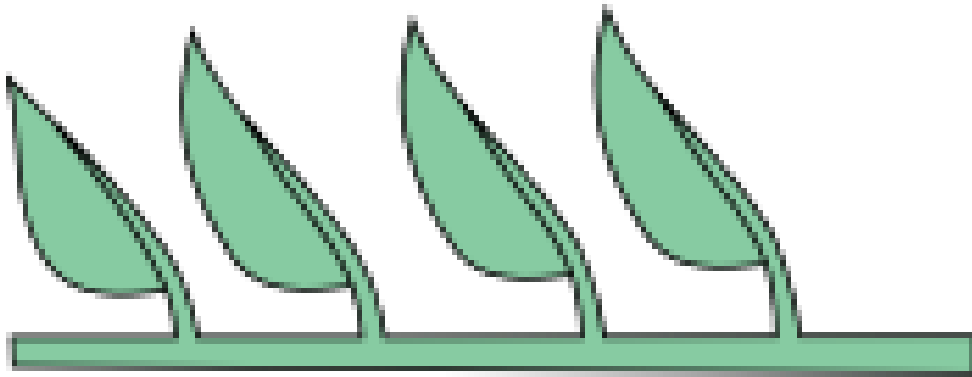
# DECUSSATE

Leaves in opposite pairs, at right angles to those above or below.



# DISTICHOUS

Leaves arranged alternately in two vertical rows on opposite sides of the stem.

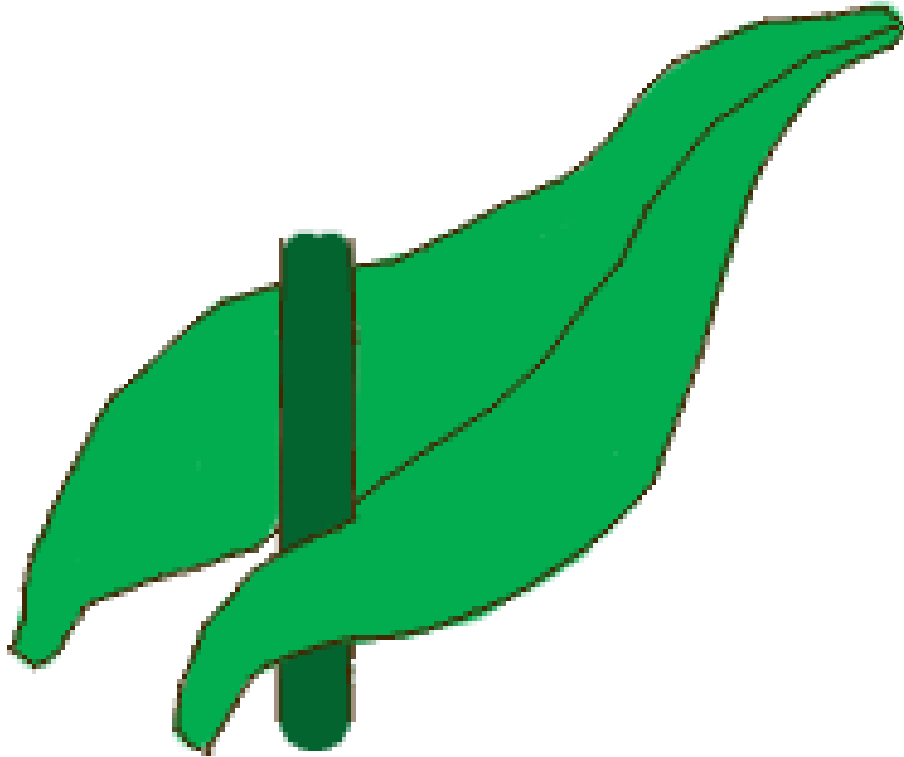


SECUND

Leaves on one side only.

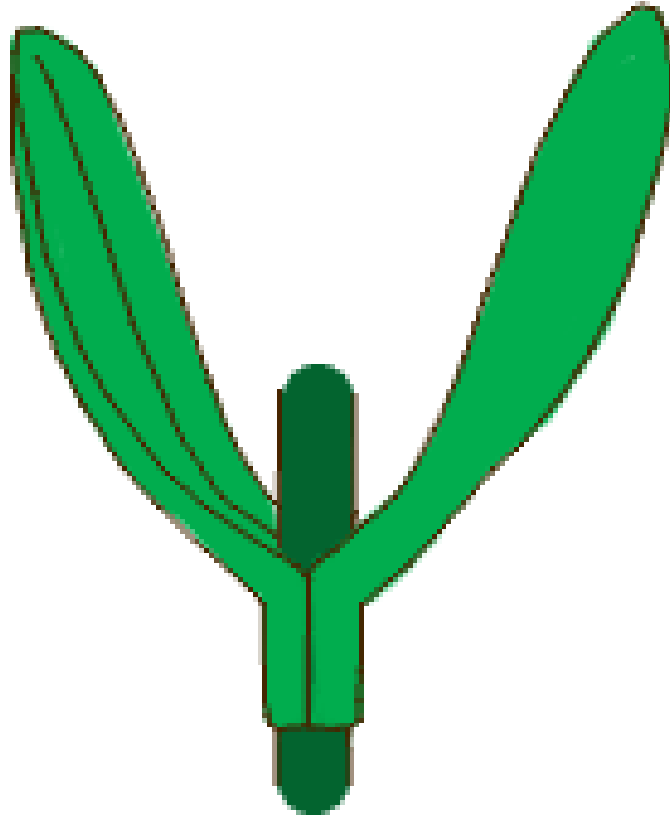


# Leaf Attachment



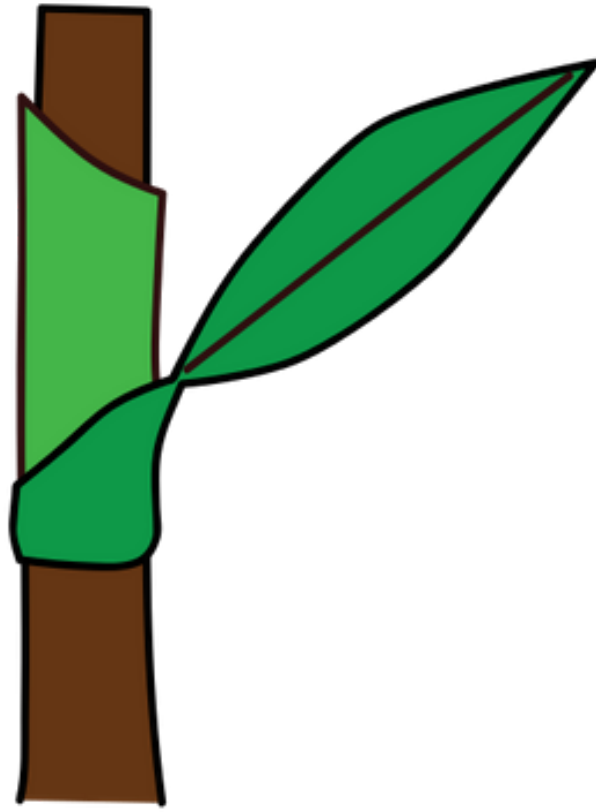
# AMPLEXICAUL

Completely clasping the stem.



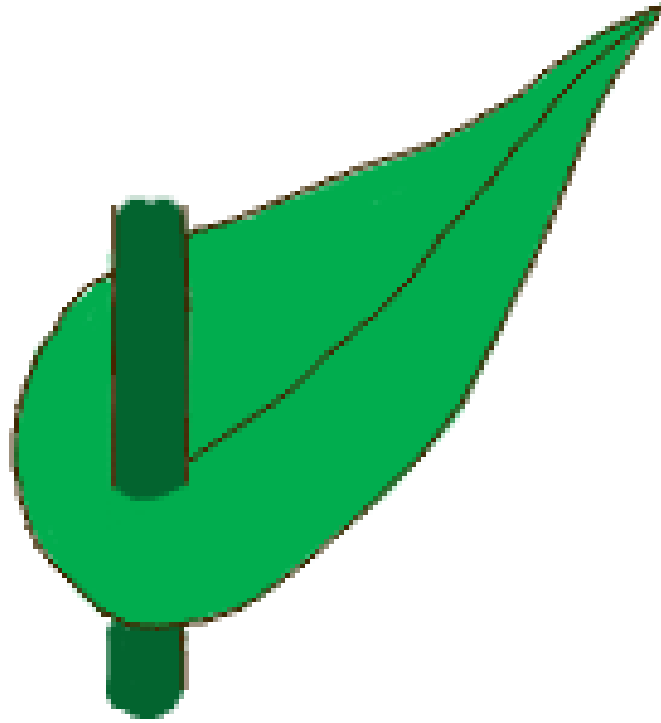
# DECURRENT

Leaf base extends along stem.



OCREA

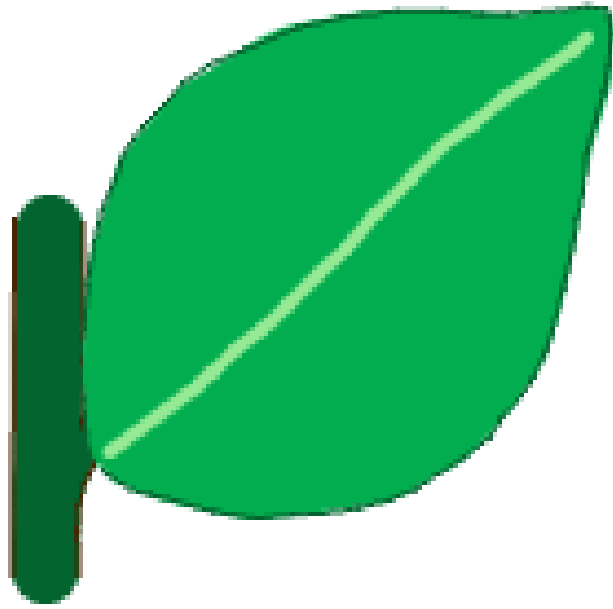
With a tube surrounding the stem above leaf base.



# PERFOLIATE

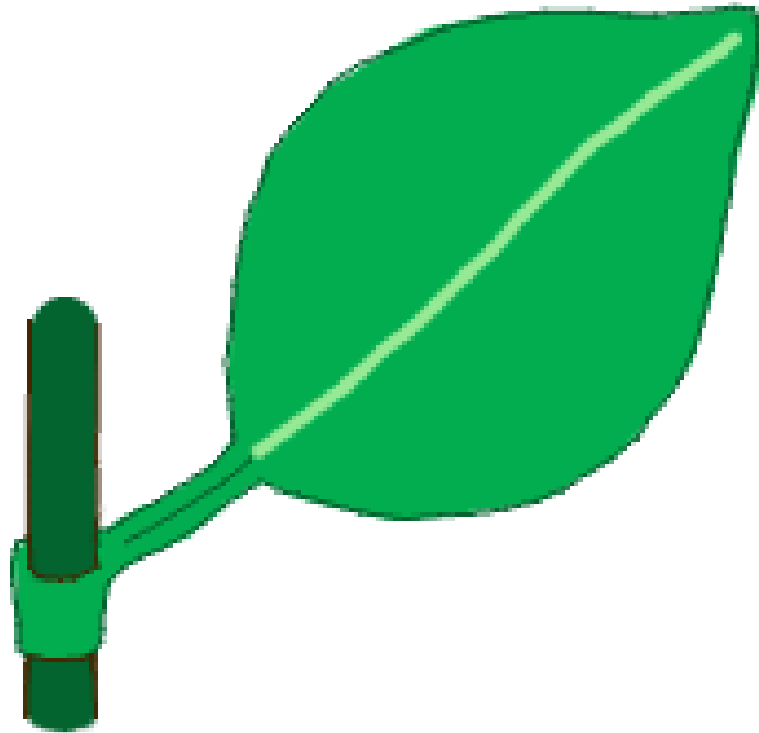
Leaf base surrounds and appears to pierce the stem.





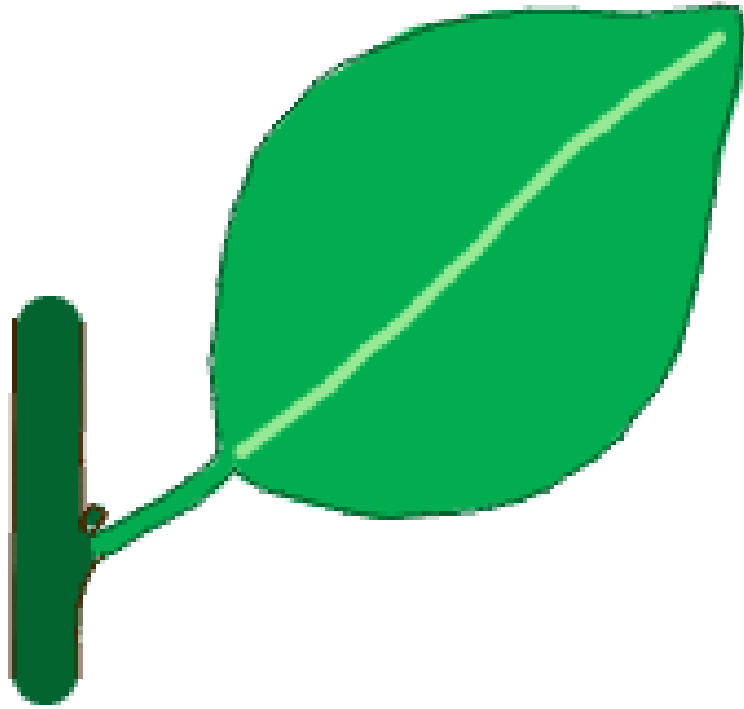
SESSILE

Without petiole.



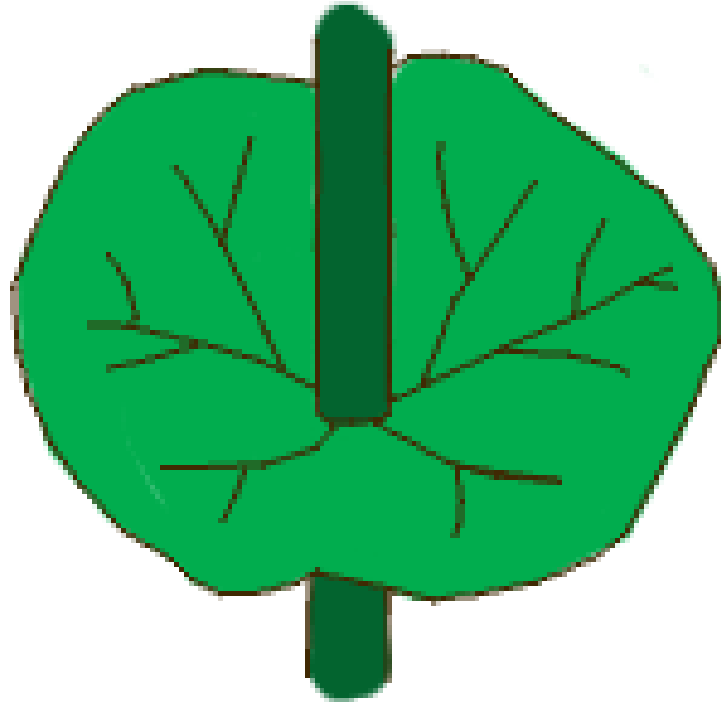
# SHEATHING

Sheath wraps around stem below insertion of petiole.



# PETIOLATE

Containing a leaf stalk, or petiole.



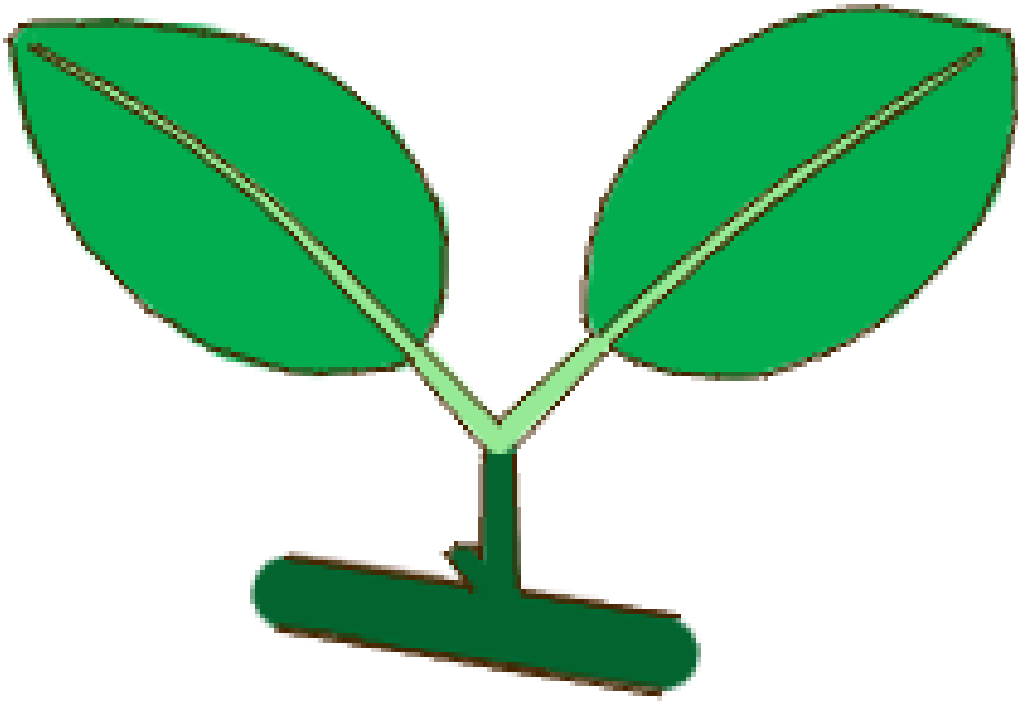
# CONNATE-PERFOLIATE

Base fully surrounds stem as stem passes through.

A botanical illustration background featuring several orange flowers with detailed petal patterns, green stems with leaves, and clusters of small green flowers. The overall style is clean and artistic.

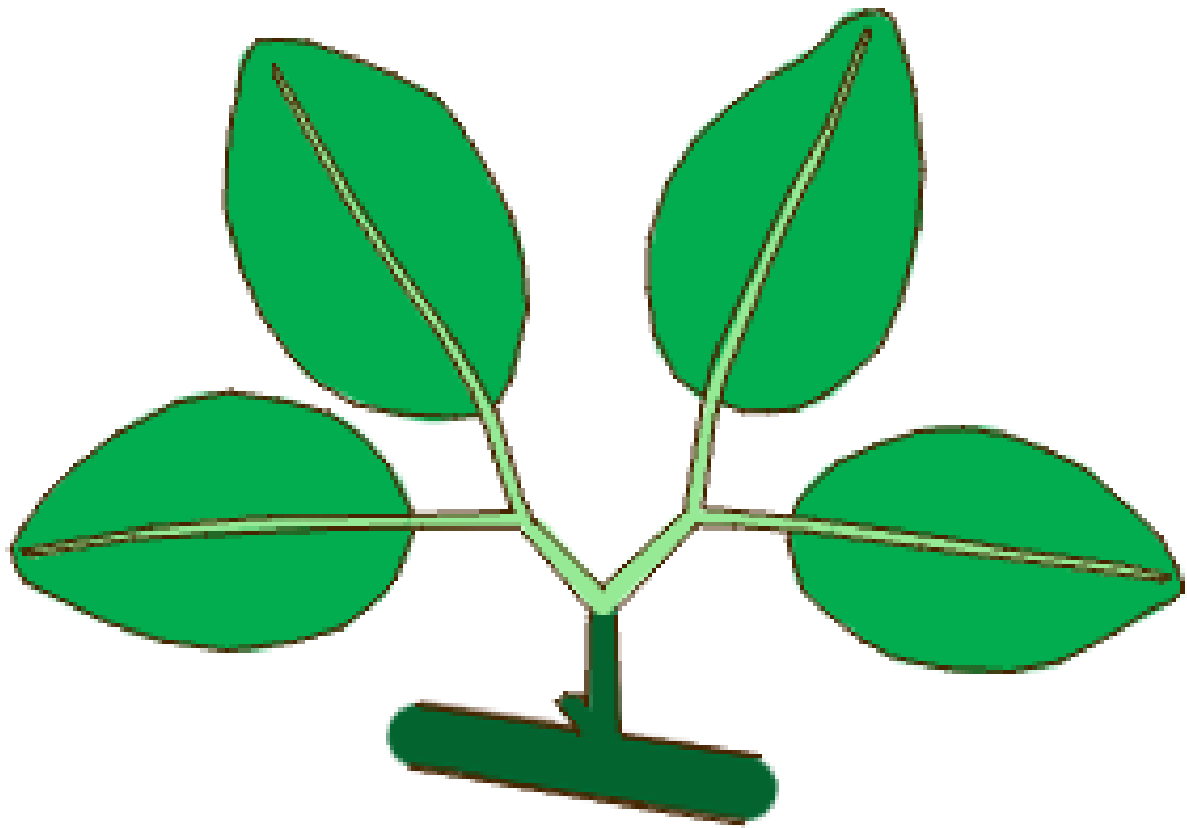
**Compound**

**Leaves**



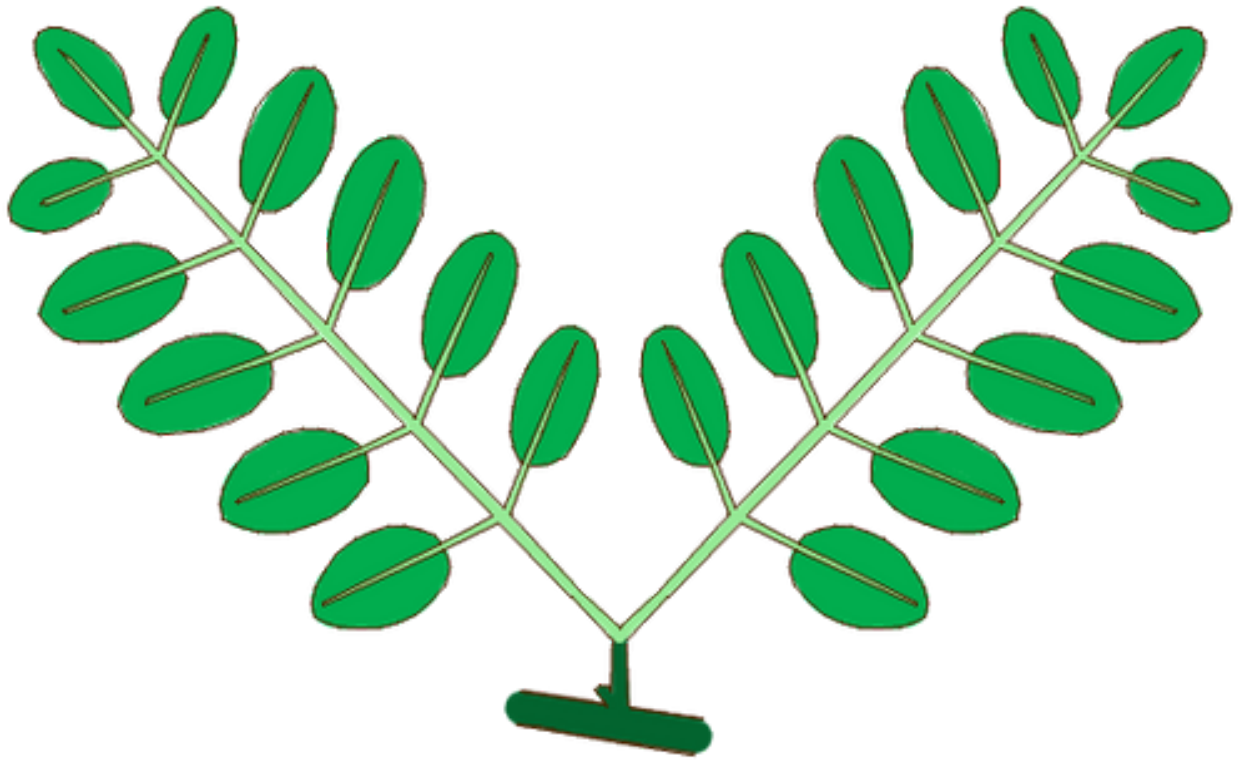
**GEMINATE**

Having two leaflets.



# BIGEMINATE

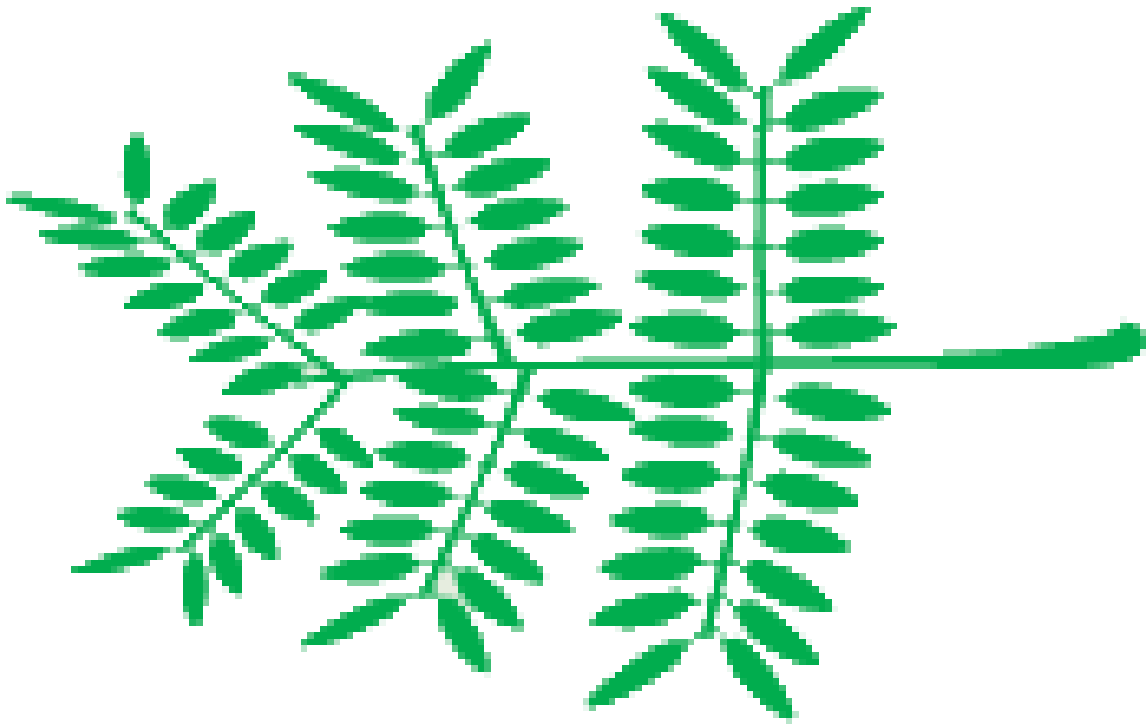
Having two leaflets, each leaflet being bifoliolate.



# GEMINATE PINNATE

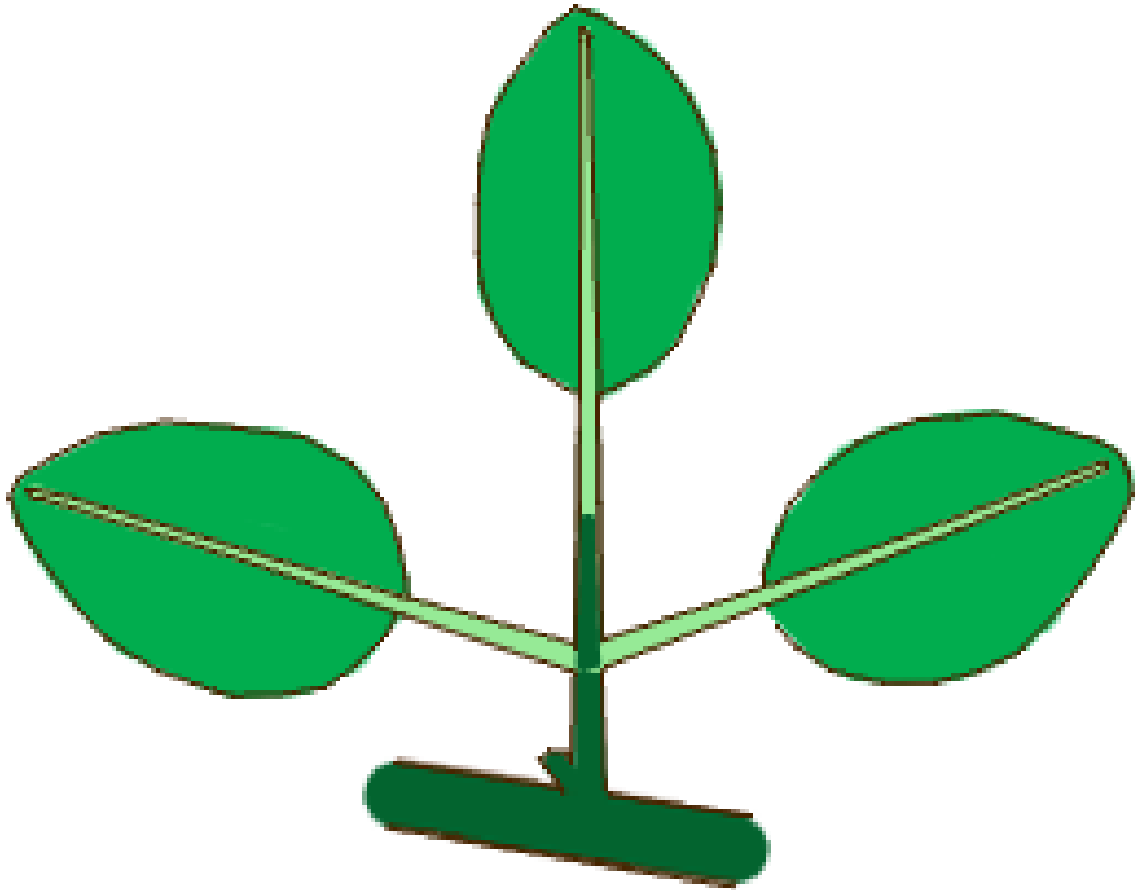
Having two rows of leaflets on opposite sides of a central axis.





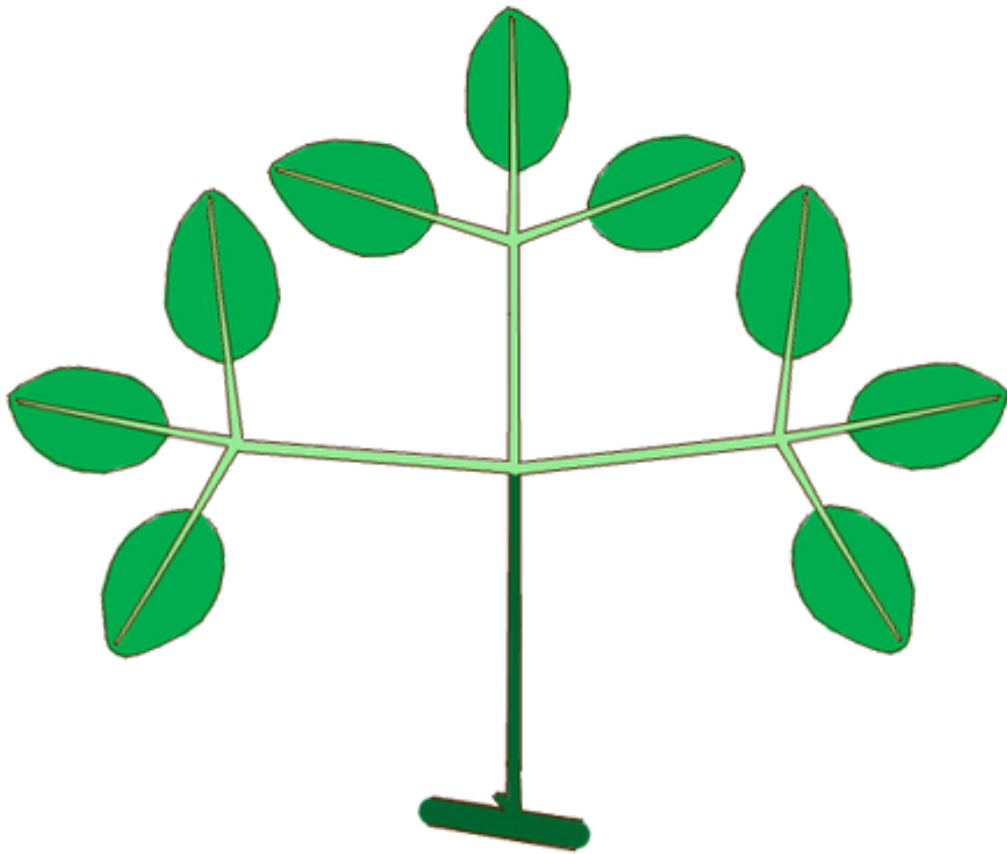
# BIPINNATE

The leaflets are themselves pinnately-compound;  
twice pinnate



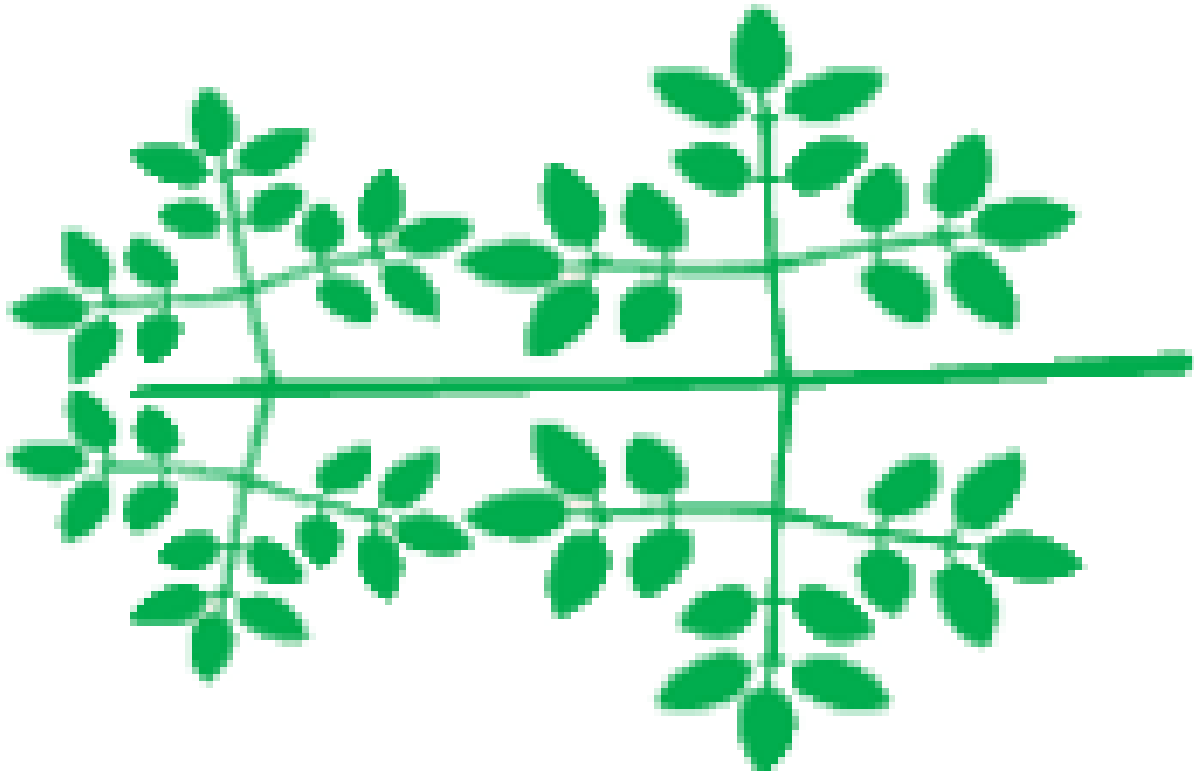
TRIFOLIATE

With three leaflets.



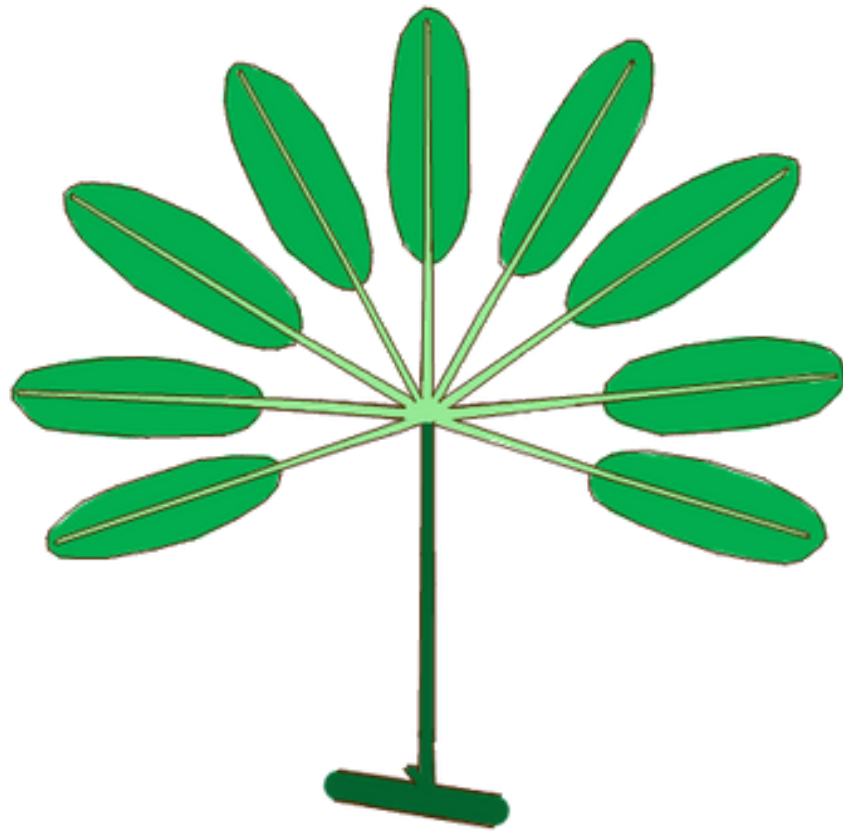
# BITERNATE

With three components, each with three leaflets.



# TRIPINNATE

Pinnately compound in which each leaflet is itself bipinnate.



# PALMATELY COMPOUND

Consisting of leaflets all radiating from one point.