

Introduction to Botany: BIOL 154

Lab 3. Morphology of shoots and leaves

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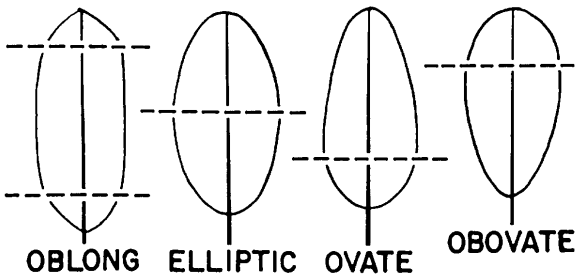
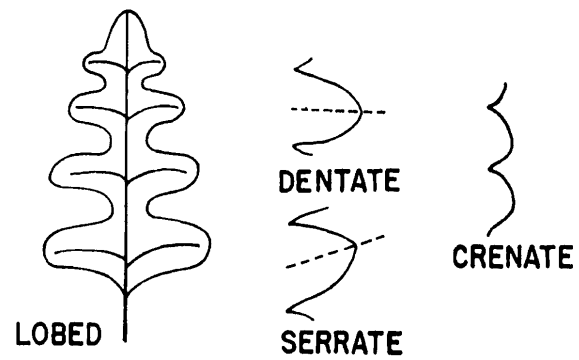
September 19th, 2010

Preparation/reading:

1. Start with 3 trees from previous lab
 2. Determine type of branching, explain
 3. Determine architectural model (use key from Halle et al. (1978) “Tropical trees and forests”), explain
 4. Determine phyllotaxis type and formula of spiral phyllotaxis (if applicable), explain
 5. Write detailed description of leaf of each plant species (see plan below). Use complete sentences. Provide a simple sketch of leaf.
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Plan of leaf description:

1. General characters (leaf as a whole):
 - (a) symmetry (symmetrical / asymmetrical);
 - (b) stipules (present / absent, deciduous / not);
 - (c) base (sheath / no, ligule /no, auricles /no)
2. Repetitive characters (on each level of hierarchy):
 - (a) form:
 - i. figure type (ellipse / rectangle / rhombus / triangle);
 - ii. length:width ratio;
 - iii. position of maximal width (in the middle / at the top / at the base)
 - (b) dissection:
 - i. degree (whole, lobed, dissected);
 - ii. type (sole, double, triple, palmate, odd-pinnate, even-pinnate);
 - iii. number of parts;
 - iv. degree of order (once, twice, triple)
 - (c) petiole (size, structure)
3. Terminal characters (leaflets):
 - (a) base [of leaf blade] (rounded, truncate, cuneate, cordate, sagittate);
 - (b) apex (rounded, mucronate, acute, obtuse, acuminate, retuse)
 - (c) margin (whole, dentate, serrate, crenate; degree of order);
 - (d) surface (color, hairs etc.);
 - (e) venation (apo-, hypho-, acro-, ptero-, actinodromous)



LEAF FORM

(a) WHOLE LAMINA

(b) BASE ONLY

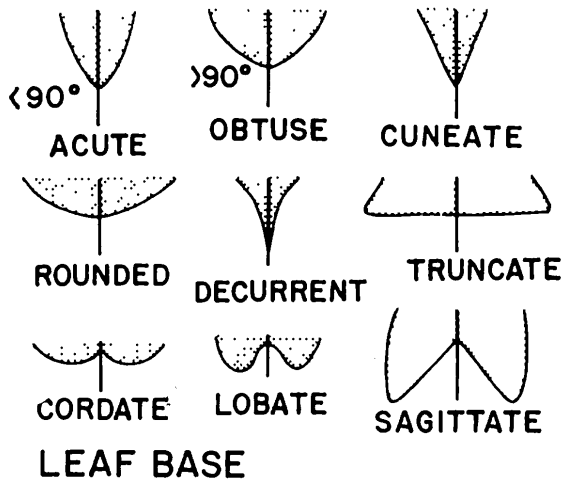
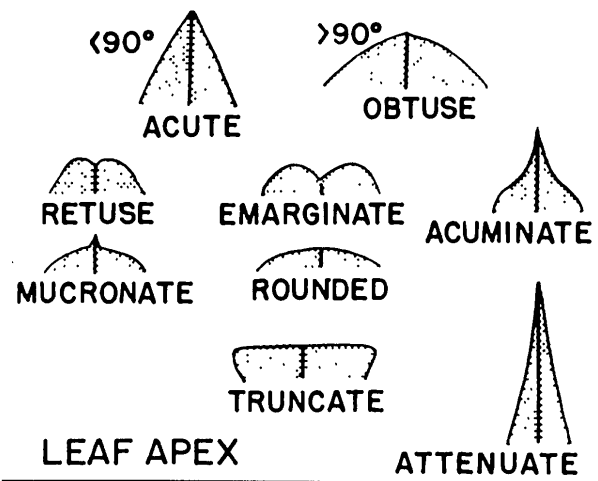
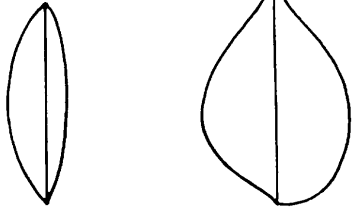


Illustration from L. Hickey (1973).