BIOL 325 – Plants Systematics Laboratory

Asterid Eudicots, part 1

Asterids comprise a major angiosperm clade consisting of more than 100,000 species. As eudicots, they possess triaperturate pollen. Asterids share a common ancestor with the rosids that evolved from the basal eudicot grade. Like those of the rosids, asterid flowers are tetra or pentamerous. In contrast to the rosids, there is a strong tendency in asterid flowers towards fusion of sepals and petals, epipetalous stamens and a reduction in stamen number to as many as or fewer than the petals. We will survey the asterids this semester in three parts due to the large number of taxa we wish to study. In this first part, we will study taxa from the mint family (Lamiaceae), nightshade family (Solanaceae), snapdragon & figwort family (Scrophulariaceae), and plantain family (Plantaginaceae).

Table 1. FYI: Economically important members of the Asterids, part 1 (alphabetically by family).

1) **Solanaceae** includes many important members: *Solanum* includes tomato, potato, and eggplant; *Capsicum* includes the chili peppers, the source of capsaicin; *Physalis* includes ground-cherries and tomatillo; *Petunia* is famous for its garden flowers; *Nicotiana tabacum* is the source of tobacco leaves and nicotine; *Mandragora* is the source of the mandrake root of folklore.
2) **Lamiaceae** includes many important herbs and ornamentals: *Mentha* is the mint genus; *Ocimum basilicum* is basil; *Origanum vulgare* is oregano; *Nepeta cataria* is catnip; *Lavandula angustifolia* is lavender; *Monarda* includes bergamont; *Rosmarinus officinalis* is rosemary; *Thymus vulgaris* is thyme.

I. Asterids Part 1

A. Families to Know on Sight

1. Lamiaceae or Labiatae (mint family) - p. 799

Summary: Aromatic herbs with quadrangular stems and opposite leaves, small to large bilabiate corollas, and schizocarpic fruits of 4 nutlets.

Generalized Flora Formula: **Ca**$^{[5]}$ [**Co**$^{[5],\ \text{bilabiate}}$ **A**$^{2+2,\ \text{epipetalous}}$] **G**$^{[2],\ \text{gynobasic style}}$, fl strongly irregular

2. Solanaceae (nightshade family) - p. 844

Summary: Poisonous (various parts when ingested) herbs, shrubs or vines with simple to compound leaves, salverform to rotate corollas, and berry (like a chili or tomato) or capsular (e.g., jimsonweed, tobacco) fruits.

Generalized Flora Formula: **Ca**$^{[5]}$ [**Co**$^{[5],\ \text{salverform or rotate}}$ **A**$^{5,\ \text{epipetalous,connivent anthers}}$] **G**$^{[2]}$, fl regular

B. Genera to Know (you can write your own key to genera)

Plantaginaceae – p. 782

1) *Plantago*
2) *Veronica*

Lamiaceae – p. 799

3) *Glechoma*
4) *Lamium*
5) *Mentha*
6) *Nepeta*
7) *Ocimum*

Solanaceae – p. 844

8) *Petunia*
9) *Physalis*
10) *Solanum*
11) *Capsicum*

Scrophulariaceae – p. 827

12) *Buddleja*