

**Plant Defense Compounds**

Lecture 18

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**Learning Outcomes**

- Plants v Herbivores
- Physical defenses
- Trichomes
- Thorns v Spines
- Chemical Defenses
- Tannins
- Terpenoids
- Alkaloids

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## Stinging Trichomes

- Various Families
- Hydrophyllaceae
- Euphorbiaceae
  - *Mala mujer*
- Urticaceae
  - *Nettles*
- Hair composed of silica
- Histamine, acetylcholine, 5-hydroxytryptamine




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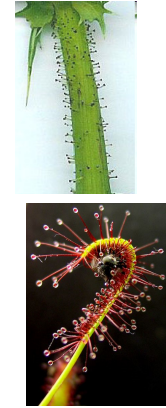
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## Glandular Hairs

- Outer line of chemical defense
- Exude defensive chemicals
- Sticky exudates may trap insects
- Sundews
  - *Drosera species*




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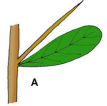
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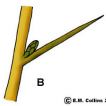
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## Anti-Herbivory Defenses


- Physical Defenses
- Thorns
  - Modified sharp pointed stems
  - A thorn of *Pyracantha*
  - Chaparral Pea
- Spines
  - Modified sharp pointed leaf
  - Spine of Barberry (*Berberis*)
  - Cacti



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## Plant Secondary Compounds

- Compounds plant synthesize not directly related to growth or metabolism
- defensive:
- Phenols
- Terpenoids
- Glycosides
- Alkaloids

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## History of Not so Deadly Tomatoes

- Pre-1800 outside of native Central America tomatoes were considered deadly poisonous
- Solanaceae contains Deadly Nightshade
- Colonel Robert Gibbon Johnson 1820 ate tomatoes on steps of Salem NJ, courthouse and survived

**POISON?**

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