# PYRETHRINS V. PYRETHROIDS

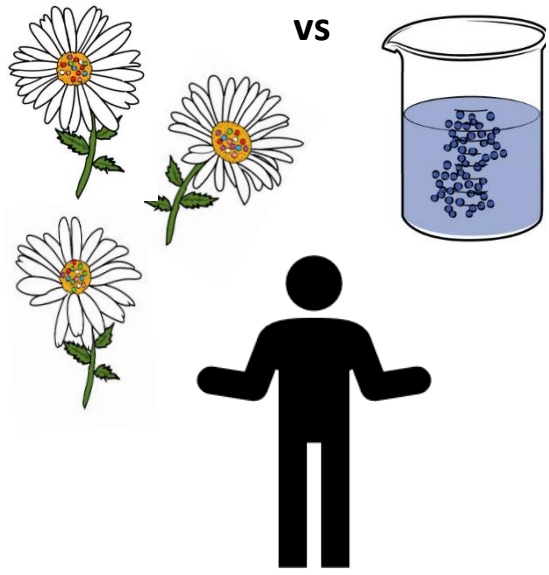
*What's the difference?*

- **Pyrethrum** is the total extract from flowers in the chrysanthemum family, while **pyrethrins** are the refined 6 esters.
- **Pyrethrins** are the 6 active molecules – or esters – that act as the killing agent in the extract.
- **Pyrethroids** are synthetic compounds produced to mimic the effects of the **pyrethrin** esters.
- **Pyrethroids** contain fewer chemical variants, usually 1 synthetic molecule as opposed to the 6 esters in **pyrethrum**.
- **Pyrethrins** are broad spectrum, killing a wide variety of insects, while **pyrethroids** tend to have longer residual effects and increased stability in storage.

**Botanical pyrethrins are made up of six active molecules.**

- The 6 molecules occur in different concentrations, similarly to how each flower to the right has a different number of colored dots.
- How and where the chrysanthemum is grown affects the concentration of these 6 molecules.
- Induces 'flushing' behavior from target insects.
- Shorter residual control, as pyrethrins are very susceptible to degradation by UV light.

**Pyrethrum** **Pyrethroids**




**Pyrethroids are modified versions of pyrethrins &contain fewer chemical variants.**

- Pyrethroids usually contain only 1 molecule that mimics a natural pyrethrin ester.
- Pyrethroid molecules are produced the same way, every time.
- Does not induce 'flushing' behavior due to fewer chemical variants.
- Longer residual control, as pyrethroids are less susceptible than pyrethrins to degradation by UV light.

**Every time pyrethrum is harvested from the flower, a different concentration of esters is included in the extract. This is like having a cup of coffee or glass of wine; it will taste different based on where the coffee bean or grape was grown in the world.**

**Pyrethroids will contain the same compounds each time it is produced, like how name brand sodas taste the same across the world.**

**As a result of the lack in variance in synthetic pyrethroids, insects can develop insecticide resistance to pyrethroids more quickly than pyrethrins.**