Pests and Pathogens on African Violets

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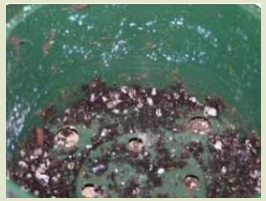
Type of Insect

Insect	*What it Looks Like*	*What to Look For*	*What to Do*
Aphids		Tiny green or black insects that gather on foliage, peduncles and blossoms.	Spray with insecticidal soap. Spray 3 times at 5-7 day intervals.
Broad Mites	 	Almost microscopic (.22 mm). Distorted, bleached leaves in crown, leaf edges curl under. Shake plant over dark paper: light spots are mites.	Use a miticide. Spray 3 times at 5-7 day intervals. Or use systemic miticide.
Cyclamen Mites	 	Microscopic. Centers unusually tight, slight graying at base of new leaves, hairy new growth, leaves hard and brittle, buds twisted and stunted. . Shake plant over dark paper: light spots are mites.	Use a miticide. Spray 3 times at 5-7 day intervals. Or use systemic miticide.

Type of Insect

Insect	*What it Looks Like*	*What to Look For*	*What to Do*
Fungus Gnats		Tiny insects that fly when plant is moved.	Let plants dry out a bit and hang yellow sticky traps in growing area. Not harmful to plants.
Mealy Bug-Foliar		White cottony specks on petioles, in axils, on backs of leaves.	Dab insects with cotton swab soaked in alcohol. Repeat each time an insect is seen.
Mealy Bug-Soil	 	Sawdust like residue in saucers, small white oval waxy specks in root ball or on inside of pots.	Use systemic insecticide.

Type of Insect

Insect	*What it Looks Like*	*What to Look For*	*What to Do*
Spider Mites		Chlorotic spots or stippling on leaves, webbing.	Wash leaves with soft cloth or forceful spray of warm water. Or spray with insecticidal soap or alcohol.
Springtails		Small light colored insects scurrying around the bottom of pots and saucers.	Let pots dry out a bit and just ignore the pests. Not harmful to plants.
Thrips	 	Small threadlike insects. Yellow pollen spilled on blossoms, small bruise like spots at juncture of petal lobes. Blow on blossoms and insects will scurry.	Remove all blossoms and buds (their source of food). Use insecticide spray or systemic insecticide to kill eggs. Hang blue (or yellow) sticky strips to catch flying insects.

Life Cycle Stages

Insect	*Life Cycle Stages*
Aphids	Reproduce sexually and develop through gradual metamorphosis (overwintering of diapause eggs (reduced metabolic activity), nymphs and winged or wingless adults) but also through a process called 'parthenogenesis' in which the production of offspring occurs without mating.
Broad Mites	Four stages: egg, larva, nymph and adult. Adult females lay 30 to 76 eggs (averaging five per day) on the undersides of leaves and in the depressions of small fruit over an eight- to 13-day period and then die. Adult males may live five to nine days.
Cyclamen Mites	Three stages: egg, larva, and adult. However, pharate females (completed the metamorphosis from larvae to adult but is still within the pupa) remain in their larval skin until they emerge. This stage is often considered a fourth stage called pupa, false pupa or quiescent nymph.
Fungus Gnats	Four stages: egg, larva (with four larval stages, pupa, and adult. The tiny eggs and oblong pupae occur in damp organic media where females lay eggs and larvae feed.

Life Cycle of Insects

Insect	***Life Cycle***
Mealy Bugs	Six stages: eggs (except for the long-tailed mealybug that births live young), 3 (sometimes 4) nymph stages and adult. Immature crawlers mature in about 6 weeks to 2 months depending on temperature, humidity and species. Mature females die after laying eggs
Spider Mites	Five stages: egg, the larva, two nymphal stages (protonymph and deutonymph) and adult. The length of time from egg to adult varies greatly depending on temperature. Under optimum conditions (approximately 80°F), spider mites complete their development in five to twenty days.
Springtails	Three stages: egg, nymph, and adult. Females lay eggs singly or in small batches, and the eggs hatch in approximately three weeks. Nymphs molt six to eight times as they develop into adults. Nymphs have the same appearance as adults, only they are smaller in size.
Thrips	Five stages: egg, larval, prepupal, pupal and adult. Female adult western flower thrips live up to 30 days and lay 2-10 eggs per day. At 68°F, development from egg to adult takes approximately 19 days. At 77°F, it takes 13 days.

Type of Pathogen

Disease	*What in Looks Like*	*What to Look For*	*What to Do*
Root/Crown Rot – Fungus Pythium, Phytophthora, Rhizoctonia	 	Wilting from bottom to top, foliage and stems turn brown, mushy roots, gray stunted or rotting crown.	**Prevention**: Control soil moisture, increase aeration (perlite), do not overwater. Use fungicide spray.
Leaf Spot – Fungal Fusarium, Ophiosphaerella	 	Spots of brown, black, gray, reddish, yellow, tan on leaves.	**Prevention**: Control soil moisture, increase aeration (perlite), do not overwater. Use fungicide spray.
Leaf Spot – Bacterial Pseudomonas, Xanthomonas		Black, water-soaked areas with yellow circular pattern around them.	**Prevention:** Good air circulation, decrease humidity.

Type of Pathogen

Disease	*What it Looks Like*	*What to Look For*	*What to Do*
Botrytis Blight - Botrytus cinera		Gray fuzzy mold on blossoms, becoming mushy, dead areas on leaf edges.	Keep humidity under 60%, good air circulation, don't overwater.
Powdery Mildew Oidium		White-grayish powder on leaves, blossoms, or peduncles.	Mild case - Wash leaves with warm water and a drop of dish liquid. Severe case - Spray with fungicide Decrease humidity and increase air circulation.
White Mold-Fungal Saprophytic fungus		White mold growing on top of potting mix. Related to mushrooms.	Feeds on dead material – remove spent leaves and blossoms. Scrape mold from top of soil. Allow soil to dry.

Type of Pathogen

Disease	*What it Looks Like*	*What to Look for*	*What to Do*
Anthracnose-Fungal Collectrotrichum		Soil-born, outer edges of leaves yellowing then turning brown.	Use specific fungicide, decrease humidity, good air circulation.
INSV – Virus Tospovirus	 	Necrotic spots on leaves, mottling, very tight deformed centers, very slow or no growth.	Test for virus. No cure or treatment. Throw out infected plants. Eliminate thrips with insecticide.
Tobacco Mosaic Virus (TMV) Tospovirus		Leaves mottled with yellow, white, and light or dark green spots and streaks.	Spread by aphids and sap. Avoid mechanical damage. Keep plants away from orchids- the major carrier.
Streptocarpus Flower Break Virus (SFBV) Tobamovirus	 	Flowers have a streaked color. Faint color changes in leaves.	Spread by sap through Aphids - avoid mechanical damage.

Chemical and Organic Treatments

There are many treatment products on the market for pathogens and pests, either chemical or organic

- There are several 3 in 1 combination products that are a fungicide, insecticide and miticide
- It is better to use organic products for human and environmental safety:
  - **Insecticidal Soap** – **Garden Safe, Safer Insecticidal Soap** - for insect control (aphids, mealybugs, spider mites, thrips and others)
  - **Pyrethrin** - **Safer End All** – contains pyrethrin (ingredient in head lice shampoo), neem oil and potassium salts of fatty acids. Kills 45 types of insects
  - **Copper Sulfate** - **Captain Jack's Copper Sulfate Fungicide –** for blight and powdery mildew
  - **3 in 1 Sprays** – **Garden Safe, Nature's Care** - for fungus, spider mites and others
  - **Neem Oil** – **Dyna Grow, Safer –** either spray or concentrate – aphids, mealybugs, whiteflies, Japanese beetles, leafhoppers, thrips, fungus gnats, and other garden pests like spider mites and nematodes. Neem oil can also kill fungal diseases like powdery mildew, black spot, scab, anthracnose, and leaf spot.
  - **Hydrogen Peroxide** – will treat bacteria and fungus, especially root rot. Spray with mixture of 1 tbsp. hydrogen peroxide to 1 cup of water.

Broad Mites

- Most miticides only treat spider mites. For Broad mites and Cyclamen mites, a chemical product may be necessary.
  - **Translaminar systemic miticides** are the preferred methods of Broad mite and Cyclamen mite control. These miticides have translaminar activity, penetrating the leaf and then move within the tissue from top to bottom.
  - Foliar spray options include **Avid (**abamectin), **Kontos,** (tetramic acid derivative ketoenole), **Pylon** (chlorfenapyr), **Savate (**spiromesifen), and **Sirocco**. (Bifenazate: hydrazine carboxylic acid).
- Broad mites do not like the heat.
  - You can try to get rid of them by dunking the plants in hot water (110°F) for 15 minutes.
  - Some growers try to reduce their numbers by overheating their grow space to 115°F for 30 minutes to 1 hour.

In Conclusion:

- Isolate any new plant for several months before adding it to your collection
- Isolate any plant that shows signs of pest infestation or disease
- Try to identify the problem
- Research products formulated for the specific problem
- Use appropriate treatment methods and maintain a sanitary culture environment
- Never place cut flowers from garden or florist near houseplants
- Be vigilant and act quickly!