

Mildew

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Mildew is a term we use generally referring to parasitic fungi that cause certain plant diseases, or to saprophytic fungi that grow on clothing, canvas, and other such materials.

Parasitic fungi attack all kinds of living things. Some, such as species of *Colleototrichum* and *Rhizoetonia*, can parasitize a wide variety of hosts. Others, such as species of *Elsinoe*, *Cercospora*, and *Chitinomyces* may be restricted to a single species of plant or animal. The sixteen species of *Chitinomyces* are not only restricted to one species of water beetle but individually are further limited to a specific part of the body of one or the other sex of this beetle. The fungi that parasitize man and other animals number only a few hundred and are of less importance than bacteria, but the diseases they cause can be serious or persistent. Familiar examples are athlete's foot and thrush.

Most parasitic fungi attack higher plants and are called plant pathogens. Those that cannot be grown apart from their hosts are called obligate parasites. They include the rusts (Uredinales), white rusts (Albuginaceae), and powdery mildews (Erysiphales). Those that can be grown in artificial culture or without host are called facultative parasites. These include the smuts (Ustilaginales) and some of the downy mildew (Peronosporales).

Saprophytic fungi, not being dependent on hosts, occur in every season and in all sorts of places, wherever there is sufficient moisture and a source of organic carbon. Common inhabitants of the soil include species of *Alternaria*, *Aspergillus*, *Cladosporium*, *Penicillium*, and *Rhizopus*. Their tiny spores, however, are generally present in the air and their germination and growth can cause food spoilage, mildew of clothing, and deterioration of other articles including even the lens of binoculars, which they attack by getting at the cement. Their growth

over the lenses then causes etching by acids that the fungi produce. Some innocuous saprophytes such as tiny sume mold (Myxomycetes) generally go unnoticed, living in surface litter and in humas. Others, such as shelf and conch fungi, can readily be observed along fallen logs or on rotting tree stumps.

Mildew of clothing and other fabrics is caused by a variety of saprophytic fungi. These fungi impart a musty odor and often cause a discoloration of the material which they weaken by their action. They can be controlled by keeping the material clean and dry. Effective antiseptics for use on fabrics such as canvas are zinc chloride, copper sulphate, anilide of salicylic acid and paranitrophenol.

We will concern ourselves with the latter, the saprophytic fungi, for that is the type we will find in water damage restoration. This mildew will grow in any area of the home with these three factors present. You must have moisture or high humidity, temperature above 68°F, and darkness, or out of sunlight.

The mildew will appear as small round spots, either black, greenish, or dark grey in color and have what might appear to be fuzzy or dusty tops. It may appear in single spots, or in bunches and if they grow together in a big mass, on walls for instance, it takes on more of a slime appearance. It has a musty odor similar to that of wet jute. Unless you get a broken pipe or some other water leaking problem, humidity in the summer months is a major factor causing mildew.

If you have airconditioning, the humidity inside your house should pose no problem; the airconditioning unit's dehumidifier will remove excess moisture from the air. If you are closing your home for extended periods, do not turn off the airconditioning but leave it at a setting of around 80°F and this will safeguard your home, preventing moisture build-up. Do not set the unit too low, such as 70°F, for this will cause excess condensation.

If you do not have airconditioning or a dehumidifier, it is most important that you air your home. Open the windows several times a day and let the humid air escape. Don't allow humid air to be trapped in closed areas. Open closet doors and do not close off rooms or keep doors or even dresser drawers closed if you are leaving your home for weeks at a time. Arrange to have someone come in to air your home occasionally.

Make sure that any clothing stored in closets or containers is clean, that it has some ventilation, or a mildew or mold preventative added to it. These come in small bags and you can also hang them in your closets. They contain paraform-aldehyde, silica gel or activated alumina, and they absorb moisture and prevent mildew. Another effective and easy way to absorb the moisture is to use charcoal briquets. Put six to ten of these in a small container or wrap in cheesecloth and hang in the closets. When the charcoal becomes damp, dry in the oven and start over again.

If mildew does occur, you can remedy the problem using the following procedures and techniques.

To remove the mildew stains from walls and to kill the fungi that caused the stains to develop, you can use a solution of $1\frac{1}{2}$ heaping tablespoon of trisodium phosphate, 1 heaping teaspoon or 2 ounces of detergent, and $\frac{3}{4}$ cup of laundry bleach, all mixed in two quarts of water. Use rubber gloves and scrub the mixture on the infected area with a soft brush. Rinse well with lots of water. If wall was heavily infected, after cleaning, and area has dried completely, you may want to cover the area with a sealer and then repaint wall.

Mildew from carpeting can be removed by first turning the rug over, or remove the carpet from the tack strip, fold it back and expose the area infected. Clean this area with white vinegar and spray with fungicide. The padding under this portion of the carpet should be replaced. After drying, reinstall the carpet on the tack strip, clean the face of the carpet using the hot water extraction method and spray with a fungicide.

To clean mildew from shower walls, run the shower water at its hottest temperature so the steam will loosen the dirt. Then using a sponge, clean with a mixture of 1/2 cup of vinegar, 1 cup clear ammonia, and 1/4 cup of baking soda in one gallon of warm water. After cleaning, rinse with clear water. Never use harsh abrasive powders or steel wool pads because they will scratch the tile or fiberglass.

You can remove most mildew from the grout between the tiles by rubbing with a toothbrush or nailbrush dipped in bleach. Rinse with clear water after cleaning. Again, don't use abrasive powders or steel wool or you will scratch the tile. If spots remain, you could camouflage the stained tile with a white fingernail pencil or white liquid shoe polish. If you get polish on the tiles, let it dry, and then wipe off with a rag.

If you have badly mildewed clothing, soak in buttermilk overnight, then launder. Should there be no buttermilk available, dry clean the clothing. Applying vinegar and exposing clothing to sunlight

also helps. Mildew spots disappear from white fabrics if rubbed with a mixture of lemon juice and salt. Place the fabric in the sun to dry before washing.

To remove mildew from brick or concrete surfaces, go over them with a stiff brush. Wet the surface with a weak five percent solution of muriatic acid and water. After the solution has been on for five minutes, brush the wall and immediately rinse with clear water. Work a four foot section at a time. When mixing acid and water, always add acid to the water and never vice versa. For your own protection, wear goggles and gloves.

For the treatment of house siding, scrub the surface with a bleach and water solution (one cup of bleach to a gallon of warm water). Flush the area with clear water and let it dry thoroughly before painting.

All of these procedures require follow-up inspections and if the stain still remains, then repeat the action taken.

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