

Fungal / Mold Growth on Prickly Pear Cactus - *Opuntia Mill.*

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- What genera/species of mold commonly grow on or injure cactus plants (family *Cactaceae*) such as the Mexican Nopal or prickly pear cactus (photo at left, - *Opuntia Mill.*) and Saguaro in the wild as well as cacti

in landscaping, gardens & kept as houseplants ?

- Photographs of mold growth on the Nopal cactus, *Opuntia Mill.*
- What are the causes, cures, & preventive methods for cactus mold?
- Questions & answers about problems with mold growth on cactus plants: cactus mold identification, cactus mold causes, & cactus mold remedies



Abstract: This article describes mold growth on pricklypear or Mexican Nopal cactus plants in the wild and on cactus kept as houseplants. We investigate the cause, cures, & prevention of mold infection of Mexican Pricklypear cactus plants, the effects of mold growth on cactus plants, and the identification of mold genera/species commonly found growing on cactus.

The Mexican Nopal, or in English "prickly pear cactus" or "Barbary Fig cactus" is a species or group of species of *Opuntia Spp.* within the *Cactaceae* family. While some sources [22] claim over 200 species in that group, the USDA lists 59 species and 75 accepted taxa within the Genus *Opuntia Mill.*[20]

I am particularly interested in fungi found on species of Nopal found at altitude in more wet or humid highlands of Mexico.

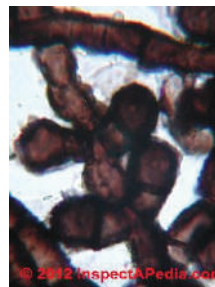
These include fruit-bearing pricklypear species (*Opuntia ficus indica*) that are widely used as a food (both the cactus fruit or *Tuna* and the younger cactus pads or *nopalito*) and drink product (an intense purple juice in water) in Mexico as well as an export product in the form of Nopal fruits, Nopal juice, and in powder and cosmetic forms. [22]

Some might think that because cactus plants generally grow in dry locations that they never suffer from fungal attack, but that's certainly not the case. The page top photograph of a mold-infected Nopal (pricklypear) cactus plant was taken in Yerbabuena, Colima Mexico. Yerbabuena is a tiny village located at a comparatively high altitude and close enough to Mexico's Pacific coast to receive more rainfall than some other areas of the country. I have observed both superficial fungal growth on the intact skin of cactus plants and plants injured or destroyed by fungal attack. Experts report fungal

invasion of cactus plants by other vectors such as through wounds, cuts, and direct penetration of the cactus. An online provides live links to references and to larger images of the photographs herein. See http://inspectapedia.com/Cactus_Mold_PAAA_2012.php

Appearance of Mold on Cactus: on the plant & under the microscope

Black & Other Dark Colored Molds on Cactus Plants - seeking identification details



Mold growth on cactus is more common in areas where cacti such as the Mexican Nopal (below left) grows in higher and less arid regions such as the Yerbabuena, near the foot of the volcano above Colima, Mexico. (Photographs by DF, la Yerbabuena, Colima, Mexico, November 2011) Pricklypear cactus (*Opuntia Mill.* are also found in the U.S. in Florida and Hawaii as *Opuntia cochenillifera*.

Our Mexican Nopal cactus mold photo (at left, 1200x) seeks expert help with confirming its identity, and is discussed below.

Below (right) and tentatively identified as a *Lasiodiplodia theobromae*-like fungus are microscopic images (approximately 600x) of the mold we found growing on the Mexican Nopal cactus.

The conidia (spores) are obovate to pyriform, with a thick cell wall, dark brown, smooth, with a single transverse septum near the base. They appear to grow in opposed pairs on either side of the hypha. The upper larger segment of the spore is generally darker than its base.

We also found, no surprise, species of *Cladosporium sp.* on this cactus surface. Some experts report that superficial molds such as powdery mildew may appear on some cactus houseplants. Mildew on cactus will appear white or gray-white and is principally a cosmetic issue. [1]



Lab microphotographs and work to identify the black cactus mold shown above are in process - Ed.

List of fungi associated with cactus plants



At left our photo shows a typical colony formation on the surface of a Nopal cactus plant, viewed by stereo microscope. Here are some of the many fungal species associated with cactus plants and/or the soils around them.[16] Keep in mind that many fungi may be helpful to certain cactus species both in soils and at cactus roots and at other plant locations or in controlling cactus pests[13][19].

But some fungal genera/species are indeed reported to invade or attack and damage or even kill cactus plants including:

- *Fusarium sp.* [2]
- *Aspergillus fumigatis* [through plant soil][12]
- *Aspergillus niger* [through plant soil][12]
- *Aspergillus parasiticus* [possibly]
- *Colletotrichum sp.* (anamorph: *C. gloeosporioides*) (cactus stem rot)[17]
- *Fomes robustus* (heart rot fungus) [18]
- *Glomerella cingulata* (cactus stem rot)[17]
- *Lasiodiplodia theobromae* - a member of the Botryosphaeriaceae/ B. rhodina family, wide ranging plant pathogen, may cause fungal (mycotal) keratitis and stem-end rot, a citrus plant disease, possible cause of nail and skin lesions on humans [5][6]
- *Phialocephala virens*
- *Poria sp.* [18]

- *Sporothrix schenckii* [12] [human pathogen , Rose-picker's disease]
- [Possibly] Yeasts [10][11] brought by insects
- 22 fungal species associated with cactus plants were identified by an assay of 900 endophyte isolates[14]

White & Light Colored Mildew & Other Molds on Cactus Plants



White stuff found on both indoor and outdoor plants (photo at left of a leaf, not cactus) including cactus plants may be mildew,

If the cactus is being kept in a too-wet or too-humid environment. Mildew infection of a cactus is more likely for plants grown out of their native (dry) environment, and when the cacti are kept close to other mildew-infected plants.

Because the skin on most succulents is so thick, mildew may do less damage to a cactus than to other plants.

However other white and light colored molds found in buildings and on some plants can be harmful to people and animals as well, such as some species of *Aspergillus sp.* and *Penicillium sp.* See [White Mold](#) for photographs of white mold growth in buildings.

Other "white stuff" we see on cactus plants may be a left-over deposit from having sprayed or washed the cactus plant with vinegar or other solutions.



Watch out: some "white stuff" on cacti and certainly on other plants may be mealybugs not a fungal infection, but deserving action.

Our photo (above left) shows what mildew spores look like under the microscope.

Photographs of mildew on plants are at [MILDEW in buildings ?](#) and advice on curing & preventing mildew on plants is at [MILDEW REMOVAL & PREVENTION](#)

Treatments for Cactus Mold Growth

Some, perhaps most molds molds observed on cactus plants may not actually harm the plants but may remain a cosmetic issue for hobbyists. Popular cactus mold cures include:

- Removal and disposal of the mold-infected cactus part if feasible - suitable for cactus house

plants;

- Using a cotton swab moistened with vinegar or with 70% alcohol to clean small infected areas of cacti used as house plants.

Watch out: cactus horticulturists point out that vinegar can be purchased in varying strengths for horticultural and other uses (thus its effectiveness as a fungicide may vary), and it is also reported that using vinegar on cactus may both help and harm the plant, depending on the strength of the vinegar solution, its application, and the plant species. Also, there may be a connection between subsequent cactus damage and acetic acid bacteria. [6] Stan Starbuck reports that while vinegar has been used successfully to treat certain fungal infections on soil surfaces

Some plants such as Aloe, Haworthia and Euphorbia suffered small amounts of cosmetic skin damage. Other plants sprayed in the same manner such as Hurenia, Echinocereus, Mammillaria and Rebutia suffered fatal results.[7]

Watch out: furthermore, often "white stuff" that appears to be "growing" on the surface of soil around plants, particularly houseplants, may not be a fungus at all, but rather a white mineral deposit left on the soil surface from watering activities. The "vinegar cure" for this condition is not killing off a mold infection. Instead it is dissolving the mineral salts back into the soil, just as we use vinegar to de-scale a coffee maker.

- For cacti grown as crops, different approaches are needed including attention to mold sources (piles of organic debris nearby) and perhaps dusting the crop with a Bordeaux mixture.
- Avoid over-watering cactus at any time but particularly if it is suffering from mildew or mold growth.

Other Pricklypear Cactus Nopal or Tuna Photographs

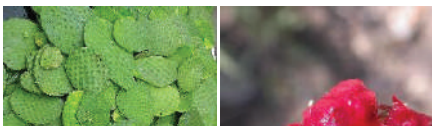


Nopalitos are sold in local markets as well as larger supermarkets and are exported as well. The young nopalito pads are harvested and cleaned of thorns for sale. (Left and below left).

Nopal is sliced into strips or diced, then cooked alone (boiled or grilled) or with a mixture of onions and other herbs, and consumed as a vegetable.

The Nopal fruit or Tunas (see photo near page top and below right) are harvested using a long pole on the end of which may be a forked nail-pair used to hook the fruits. Tunas may be peeled and eaten as a fruit

but quite often are immersed in water, on occasion with added sugar, to make a fruit beverage.



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