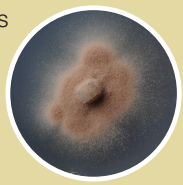
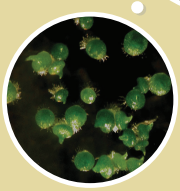
Orchid Life Cycle and Fungal Relationships

Fungi

Each orchid life stage is dependent on specific fungi, but very few of these fungi have been identified because they rarely form fruiting bodies (mushrooms).





Protocorms

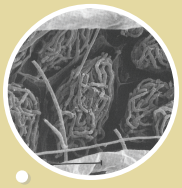
Orchid seeds germinate into protocorms that occur in a variety of shapes. Tropical orchids produce protocorms that quickly turn green and develop leaves. Terrestrial orchids produce protocorms that may remain belowground for several years before they emerge and produce their first leaves. During this stage, protocorms depend completely on fungi for their growth and survival.

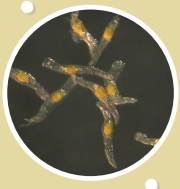
Seedlings

Orchid seedlings may depend less on fungi as they grow, but continue their association with them to supplement their nutrition especially during stressful conditions.

Orchids restrict mycorrhizal fungi to their roots. Inside orchid roots, fungi form coils of hyphae called pelotons. Orchids digest these pelotons to obtain nutrients needed for growth.

This *Russula* is a rare exception – an orchid mycorrhizal fungus that produces mushrooms.





Seeds

Orchid seeds are so small that they are referred to as “dust-seeds.” These tiny seeds contain little nutrition to support germination and growth. This is why orchids form mycorrhizas, symbiotic relationships with fungi, early in their lives.

Adult Plants

Mature orchids, such as this *Pogonia ophioglossoides,* produce highly modified flowers designed to attract specific pollinators. Successful pollination renews the orchid’s life cycle for the next generation.

North American Orchid Conservation Center

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Established by Smithsonian United States Botanic Garden