



Orchid Seed Germination

Orchid seeds are small and contain little food reserves. A single seed capsule may contain 1,500 to 3,000,000 seeds. Sowing the seed *in vitro* makes it possible to germinate immature seed (green pods) and mature seed (dry seed). It is much easier to sterilize green capsules than dry seed. Lucke (1971) indicated that orchid seed could be sterilized when the capsule is about two-thirds ripe. Listed below are approximate ripening times of capsules for various orchid species. Exact capsule ripening times may vary depending on species, hybrid, and growing conditions.

ORCHID GERNERA	TIME TO MATURITY (MONTHS)	ORCHID GENERA	TIME TO MATURITY (MONTHS)
Bulbophyllum	3	Laelia	9
Brassia	9	Masdevallia	3.5
Calanthe	4	Miltonia	9
Catasetum	10	Odontoglossum	7
Cattleya	11	Oncidium	9
Coelogyne	13	Paphiopedilum	10
Cymbidium	10	Phaius	7.5
Cypripedium	3.5	Phalaenopsis	6
Dendrobium	12	Spathoglottis	1.5
Encyclia	8	Stanhopea	7
Epidendrum	3.5	Vanda	20

Immature (Green) Capsule Disinfection

1. Soak the immature (green) seed capsule in 100% bleach solution for 30 minutes.
2. Dip the capsule in isopropyl alcohol or ethanol for 5-10 seconds. Remove the capsule from the alcohol and carefully flame off the excess alcohol.
3. Under aseptic conditions, using a sterile knife or scalpel, open the capsule and scrape out the seed.
4. Carefully layer the seed over the surface of the culture medium. Seal all culture vessels. These vessels are now your mother flasks.

Mature (Dry) Seed Disinfection

1. Collect seed and place in a small flask or bottle.
2. Prepare a solution containing 5-10% commercial bleach plus a few drops (2 drops/100 ml) of Tween 20 (Product No. P720).
3. Add the bleach solution to the flask or bottle. Swirl the flask or bottle containing the seed and bleach to surface disinfect the seed.

PhytoTechnology Laboratories LLC

PO Box 12205; Shawnee Mission, KS 66282-2205

Phone: 1-888-749-8682 or 913-341-5343; Fax: 1-888-449-8682 or 913-341-5442

Web Site: www.phytotechlab.com

© 2008 PhytoTechnology Laboratories, LLC



4. Disinfect the seed in the manner described in Step 3 for 5-10 minutes.
5. Remove the bleach solution and rinse the seed with sterile tissue culture grade water (Product No. W783).
6. Transfer the seed to sterile culture medium and seal all culture vessels. These vessels are now your mother flasks.

Replating Seedlings

1. It may take anywhere from 1 up to 9 months for seed to begin to germinate. Approximately 30 to 60 days after germination starts, it will be necessary to transfer the seedlings to fresh medium for continued growth.
2. Prepare an orchid maintenance/replate medium, such as P748 for epiphytic orchids or T849 for terrestrial orchids. Refer to *PhytoTechnology Laboratory's "Orchid Seed & Tissue Culture"* technical support bulletin for guidance in media selection.
3. Under aseptic conditions, transfer the seedling from the mother flask to the flask containing the fresh medium. You should place the seedling about ¼" apart on the medium surface.
4. Allow the seedlings to continue to grow and develop. Root formation generally begins when the plant has 2-3 leaves. Continue to transfer the seedlings to fresh media every 30-60 days, increasing the spacing between the plants with each transfer. When the flask is ready for transfer to a community pot in the greenhouse, most flasks will have 15 to 30 plants depending upon the species.
5. Transfer the plants into a community pot using a finely ground orchid mix.

Further information concerning culture media selection for terrestrial and epiphytic orchids, seed germination and stem propagation techniques, and media preparation can be found in the "**Orchid Seed & Tissue Culture**" technical support bulletin, available on *PhytoTechnology Laboratories* website.