How do you deflask your orchids and look after the seedlings?

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Buying flasks of seedlings is a great way to build your collection. It will undoubtedly raise your spirits, if after years of care, you proudly flower a seedling grown from 'babyhood' to 'adulthood'. It will also make you question your resilience and patience when you lose the seedlings to rot or some other catastrophe. And you will! Hopefully, this article will increase your chances of success.

There are many methods for deflasking and finding the process that works for you is part of the adventure. There are a few things to consider before you purchase and 'birth' those precious babies. Firstly, do you have the time and patience to grow the little ones? Generally, it will be three to six years before you see blooms. Cattleyas and Dendrobes may be some of the easiest and fastest, paphiopedilums, often, the slowest. So, focus on what you are going to still be passionate about in a few years' time. No point buying a flask of large, purple, exhibition type Cattleyas if you have limited space and like small, colourful flowers. Choose wisely. If you're relatively new to orchids but doing OK with larger plants and seedlings, it's time to 'dip your toe in the water' and buy a flask. Buy the same types of flasks as the plants you are currently growing well. If you grow cymbidiums well, in the southern states – buy those. Cattleyas, Vandas and Paphiopedilums in warmer climes. DON'T pay a lot (relatively) for your first few flasks as you'll undoubtedly lose many of the seedlings. Ask around your local orchid society for reliable sources and tips on hybrids that are likely to grow well and produce quality flowers, in your area. Of course, read the flask list and advertising for descriptions and ideas. Write a short list of flasks that interest you and ask around for advice. Use Google for picture references. Perhaps the 'cross' has been made before and you can 'crystal ball' the outcome from the internet. At least that way you have a fair idea of what you'll likely end up with. You can always buy flasks of mericlones which should all turn out the same as the photo. Afterall, they are tiny pieces of the same plant.

The next things to consider before you part with your hard-earned cash is when will the flask need to be opened? That's important. If the seedlings are large with good roots and its Spring, they will do much better on deflasking. Small plants that don't look to be healthy won't do well if you must deflask in late Autumn or Winter (assuming you don't live in the Tropics). Remember, if you must have the flasks sent by mail or courier, they usually get a bit churned up and often have to be deflasked on arrival. That forces your hand. Ask for a picture of the actual flask if you're not familiar with the breeder. You can ask a fellow grower who might be familiar with supplier's flasks. Are the seedlings usually robust? Do 'their' flask travel well or get badly jumbled? Worth knowing in advance. Of course, if you can buy the flasks at an orchid show or pick them up, that gives you a much better chance of buying flasks that are more likely to succeed. (figure 1.) Unfortunately, many of the flasks that come from overseas arrive in the cooler months in Australia (at least with Paphiopedilums) so extra care will be needed to ensure success. If they can wait until Spring place the flasks in a shaded position with a plastic bag over the top to prevent water ingress. Most flasks have a filter covered 'breather hole' to allow air exchange but keep fungi and water out. It needs to be kept dry. (figure 2).

So, you have done your homework, picked a reputable supplier and now it's down to business. Have everything ready well in advance. Once the flask is opened there is no going back; "darn, I haven't got any seedling mix" or no clean pots…….

You will need –

1. Pots – I like 100-150mm squat plastic pots. I use two or three per flask.
2. Seedling mix. I use 'fine bark' (about 40%) and fine charcoal and jumbo perlite (30% + 30%). You can buy bags of 'seedling' mix from vendors at orchid shows, and these save some hassle. I don't use sphagnum moss, though some do. I find, except for vigorous cattleyas, the seedlings start well, in sphagnum, but then slow down. Maybe it's just my conditions. You can always ask the flask supplier what mix they have success with. (fig. 3)
3. Glass flasks – 30cm long construction bolt, hammer, sheets of newspaper/magazine paper, to break the flask, safely (see below). Plastic flasks; just undo the lid! (figures 4,5,6,7)
4. Seedling tray and plastic cover (Bunnings has them if all else fails). Figure 12)
5. Labels – critical! Write out 3-4 labels for each flask BEFORE you open the flask. Write the flask code on the BACK with the date of deflasking. Write the name of the plants on the FRONT. Thick, white, plastic labels and graphite marking pencil that doesn't wash off (buy at an orchid show). (fig 3.)
6. Plastic containers to wash off the agar or soak the seedlings as you deflask. (figure 8)
7. Space allocated in a protected, fairly shady place in the greenhouse or undercover on a patio/deck table (away for dogs, cats etc). No direct sunlight or drafts.(figure 12,13)
8. Other considerations – if you have no choice but to deflask in winter and don't live in the tropics, a seedling 'heat mat' can keep them warmer (on a night timer). You <u>may</u> need to add appropriate lighting, too. Seedlings will grow faster if 'warm' (above, around 18deg C with 12-hour day length).

Early success with the 'deflasklings' requires replication of the environment that the 'babies' have been in for the last 12-24months. Much like foetal humans and animals they have been in a very tightly controlled environment – except they need light. The plants have constant access to nutrition through the agar gel that are growing on. They are kept at a constant, warm, temperature. Humidity in the flask is 100%. They are in a sterile environment without pathogens (bacteria and fungi) trying to kill them. They are artificial lit for 12-16hrs per day. The challenge for us is to continue those conditions, as best we can, for at least several weeks as they transition to the more usual conditions in our greenhouses. Minimising the 'shock' of entry into the outside world is the key to success; like caring for a baby!

If the agar isn't jumbled and the seedlings look small or weather inclement, you can keep the plants in the flask. Sometimes for many weeks. Warm and bright, indirect, sunlight. Perhaps a kitchen windowsill. Check every day. If you seek any mold on the agar – out they come IMMEDIATLEY.

The nitty gritty –

a. Do ONE flask at a time. Have the plastic container with clean water for soaking the seedlings before potting. You don't need to add fertilizer or fungicide. Put one of the labels in the container with the seedlings so they don't get mixed up. (figures 3, 8)
b. Lid off the flask. If plastic gently tap the bottom of the container with your hand until the seedlings come out. If glass, time to crack the flask. Place it on half a dozen sheets of newspaper.

Put the long bolt down into the flask, avoid crushing the seedlings. Pull the paper up around the flask and lift the whole lot a centimetre or two off the bench. Tap the head of the bolt with your hammer until it breaks through the bottom of the flask. Doing it this way usually knocks the bottom of the flask out. Its better than shattering the flask by hitting it on the side – too many glass shards. Put it all down on the bench. Immediately place the large, broken, top of the flask in the rubbish. (figures 4-7). Gently and carefully lift the seedlings up. Remove any glass shards from the agar 'puck'. Put the glass free seedlings into the water. (figure 8) Dispose of the glass with the newspaper in the rubbish.

c. If the agar is rubbery and still in one piece, you'll need to break it up, gently, with your fingers or a short stake/stick/pencil. Leaving rubbery agar as a solid puck won't allow the seedlings to settle in and grow new roots (it dries out and is too hard). If the agar is soft, like jelly, agitate in the water and wash some of it off. Its ok to leave some agar on. However, try to keep the plants as a group; makes potting them easier. I gently 'pull apart' the seedlings into 2 'bunches'. I think splitting them into two pots is a bit of insurance. (figure 9)
d. The community pot has about one third gravel, for drainage, on the bottom. Fill the next third with the seedling mix. Place the clump of plants on that. Fill around the plants with mix. Fill up any little spaces between the plants. Just up to the base of the plant. Try to have the final level of the plants and mix about 5-10mm below the rim, aids humidity and watering. (figure 10,11)
e. Repeat for all flasks.
f. Place the community pots in the tray (note - hole for drainage about 1cm above the base; we don't want to drown the plants but do want them in a bit of water to keep the humidity high). Water, gently, with a watering can. Put the lid on. Close the vents. (figure 11,12)
g. Place where its warmer (or use a seedling heat mat in cool weather) and dappled light.
h. Check every few days that the mix is moist and there's water in the tray. You shouldn't have to water.
i. Fertilize with half strength what you would normally use, weekly.
j. Open the ventilation tabs in 2-3 weeks but leave the lid on for another few weeks. Then, lid off and leave in the tray and place with other young seedlings.
k. Remove any dead or dying plants. Cut off any brown leaves with sharp scissors. Only use fungicide (eg. Mancozeb) if needed. If there is a 'rot' problem, remove the lid to improve airflow, but make sure they don't get dry.

Remember the roots on the deflasked seedlings don't work in their new environment and so the plants need moisture and humidity, so they don't dry out, until new roots form.

If you can get them established over the next 6 months, or upcoming Spring, you can place into individual pots or allow to stay in the community pot until larger. As they establish and grow you should increase the light and water as they transition to the adult growing area.

Flasks are a great way to increase your collection if you have the time and patience. It's a real joy to flower a plant you've grown from flask. Hopefully, this article and help from friends at your local Orchid Society will lead to success.

Good growing!

Figure 1. Good roots. A few leaves starting to brown – time to deflask. They should do well.

Figure 2. If the flasks aren't ready to be opened, place a small plastic bag over the top to keep water out of the 'breathing hole'. Place the flask with other seedlings on the bench. Inspect second daily for mold or browning leaves.

Figure 3. 100mm squat pots with scoria/coarse base and half filled with seedling mix. All the equipment needed. Labels. Bolt. Hammer. Newspaper. Time!

Figure 4. Long bolt carefully placed through the plants, against the bottom of the glass flask.

Figure 5. Sheets of paper pulled up around flask. Hit bolt with hammer until the bottom of the flask breaks off.

Figure 6..

Bottom and top of flask separated.

Figure 7 .Lift the ‘puck’ of plants and agar off the paper and away from the broken glass. Use a stick to knock off any glass sticking to the ‘puck’. Glass straight to rubbish. ‘Puck’ into the water bath.

Figure 8 . Puck in the water bath. Gently shake/swirl and knock off most of the agar. Its fine to leave some soft agar. Firm, rubbery agar needs to be picked out, if possible. Labels in with the seedlings.

Figure 9. The seedlings has been separated into two by gently pulling apart. Leave the roots stuck together rather than trying to separate all the seedlings.

Figure 10.The seedlings sitting in the prepared pot. Note the height of the plants in the pot.

Figure 11. The mix is gently fed in around the clump of seedings and any gaps filled. The mix just covers the roots and base of the seedlings, finishing just below the rim of the pot.

Figure 12. The dome is on. Vents closed after watering the seedlings and leaving 1cm of water in the tray (note drainage hole). Placed in a shaded area near compots 6-12 months older.

Figure 13. After 6-12 months the seedlings are ready to go into 50mm tubes. More light but not adult levels.