

Getting Commodity Cacti to Flower



Two newly-purchased commodity cacti in September 2018. The PClav in a 2 inch pot on the left does not look very appealing. Most people would opt for better-looking species of cacti – because they don't know what PClavs are capable of.

The following piece is part of a collection of writings published on the [Practical Small Cacti Malaysia site](#).

Experimenting with Commodity Cacti

There is one important aspect of growing cacti and succulents that is missing in my collection: growing commodity cacti and getting them to flower. My *Parodias* are either very old specimens or rooted offsets. My GBalds are propagated from offsets or stem cuttings over the years. For the three species that flower profusely in the tropics – PClav, PMag and GBald – I don't have any recent experience in growing them from purchased commodity cacti specimens.

It's possible that my specimens are acclimatized to the local microclimate, and plants that are purchased may need time to get used to local conditions. Since my own plants are performing so well, can I get purchased commodity cacti to do the same? To answer this question, I have started to experiment on commodity cacti for PClav and GBald in recent years. For PClav, I have one specimen purchased in late 2018 (picture above) – the focus of this chapter.

Nicknames for Scientific Names

PMag = *Parodia magnifica*

PClav = *Parodia claviceps*

GBald = *Gymnocalycium baldianum*

MGeo = *Myrtillocactus geometrizans*

This naming scheme is purely for convenience. Just think of them as webchat nicknames. Other nicknames and additional notes can be found in the appendix to the third chapter.

What About PMag Commodity Cacti?



PMags in bloom, June 2021. Two bent-over PMags (blue arrows) are rooted offsets of the big PMag. All four PMags in the picture are willing to produce flowers regularly when given adequate nutrition. All five stems of the big PMag produces flowers.

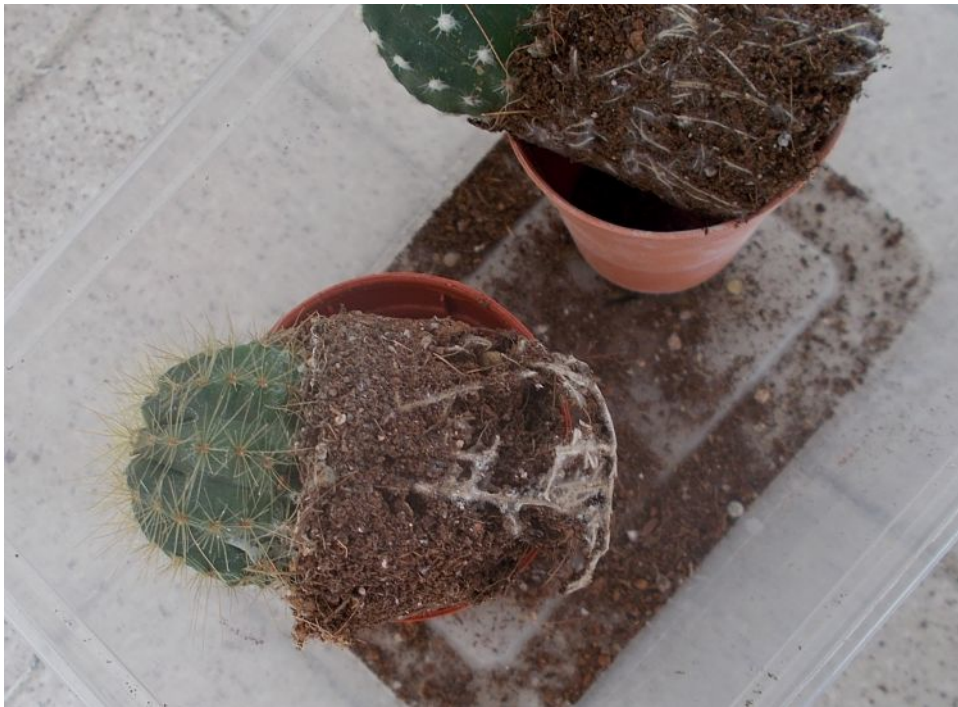
For *Parodia* I am focused on PClav experiments, since I prefer a solitary PClav stem over a PMag with many offsets and a main stem that tends to flop over (see the picture above.) I think PMags grow faster than PClavs around the time they mature, so one can get large specimens with less fuss. And if mature PMags are well-fed, they produce flowers regularly.

So I will let other folks experiment on PMags. Remember, repot PMags regularly or they will become pot bound and growth will be impaired.

Inspection and Cleaning



RM9.40 for the two 2-inch pots of cacti. The other pot is a couple of *Echinopsis subdenudata* – at least that’s the usual online shop ID for these. (Sep 2018)



They have been growing for some time in a loose potting mix. (Sep 2018)



The new plants with potting mix being removed. (September 2018)

The PClav was purchased on a whim from a plant nursery in Klang Valley in mid-September 2018, and it was the lone PClav on display. PMags are more commonly stocked as commodity cacti, so I was intrigued by the possibility of an experiment: get a flower out of a commodity cacti PClav.

The PClav was not a prime specimen and it will never be attractive to customers who buy cacti for their looks. It may have shrunk a bit due to lack of water – plant nursery folks rarely water their commodity cacti. The specimen also reminded me of my tray of rooted PClav offsets which have not been growing much. My suspicions proved to be correct as the new PClav had a concave underside, which meant that it was a rooted offset too.

There were some small white bits in the potting mix, much smaller than perlite, which I took to be a minor mealybug issue. Some of the white bits were right under the plant, in the concave underside – a perfect hiding place for bugs. On the whole it's nothing too serious, as mealybugs are something that ants spread around and they will be everywhere. But it's a good idea to repot any plant you buy right away as it will allow you to check inside the pot for bugs. Removing all the roots (see the next page) is not a risky act for the PClav as the species is good at producing strong root systems.

I scratched at some brown spots on the stems with my scale insect tool, but I don't think there were any scale insects. On the whole, the plants were still in good condition, though most people would not be impressed by the PClav.



After cleaning off the potting mix and most of the roots. I always choose this kind of treatment over any plant quarantine process, because you must look inside the pot and the potting mix to check for mealybugs. (September 2018)

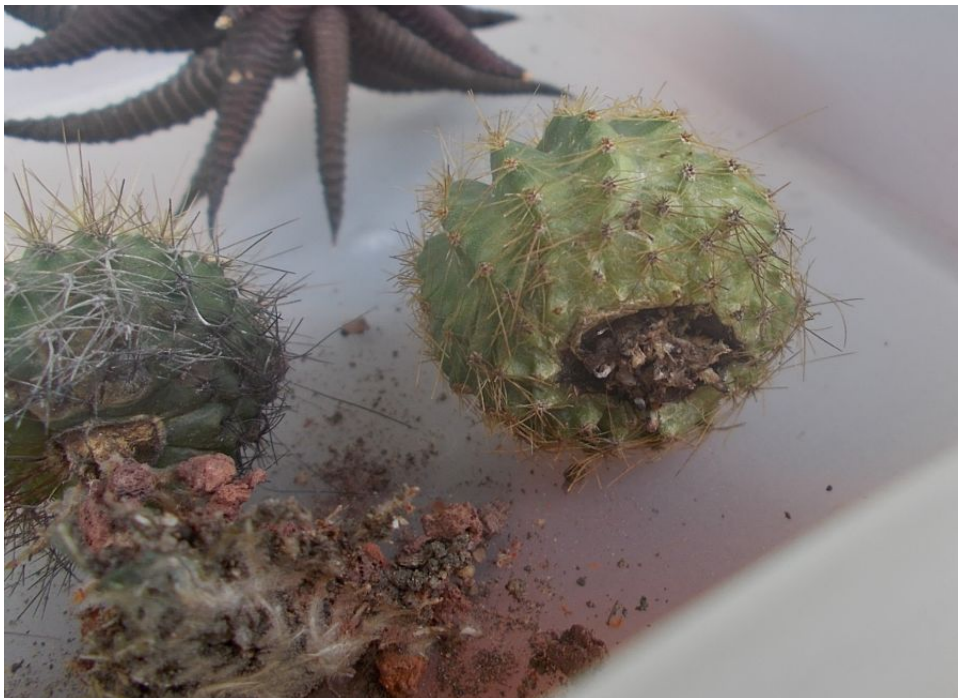


Two days later, most of the roots of the PClav were removed to make the specimen regrow new roots. The above shows the concave underside of the PClav, which means that it is an offset and not a seedling. (September 2018)

A Failed Experiment, then Potting Up



For the next 3 months or so, they were placed on a tray of moist or wet LECA balls in an attempt to induce root growth. The PClav (blue arrow) did not grow any roots. Both *E. subdenudata* have etiolated. It was a failed experiment. (January 2019)



The underside of the specimen showing no root growth, just before potting up. The other PClav (left) is a rooted offset from the scoria tray. (January 2019)



The PClav (blue arrow) after potting up using a loose potting mix of mostly soil. The *Haworthia* and the other PClav (a rooted offset which came from the big PClav) have been mentioned in earlier chapters. (January 2019)

Initially I tried to induce root growth by keeping the PClav on moist or wet LECA balls. This was part of an experiment involving a number of other small cacti plants or offsets and they were all located indoors near a window. There was no root growth on the PClav after more than 3 months. Looking back, LECA balls was a poor choice of substrate to use, the dish was too shallow, and I was overly optimistic about the PClav's ability to produce roots in what is more or less open-air conditions.

In late January 2019, I pulled the plug on the experiment. The *E. subdenudata* have etiolated; since *Echinopsis* are quite reluctant to flower in Klang Valley, Malaysia, I will not discuss them further. I wasn't expecting much from them anyway. The commodity cacti PClav was potted up and relocated outside. It started to show signs of life not long after that and grew quite fast in the following months (see pictures on the next page.)



The PClav (blue arrow) with other specimens in early March 2019. The two PClavs have swapped places compared to the January 2019 picture of the specimens.



The PClav (blue arrow) with other specimens in mid-June 2019, almost 5 months after potting up. Both PClav specimens have grown a lot and look very healthy. The commodity cacti PClav is now a little too big for its 2-inch pot.

Repotting and Growing



The PClav a month later in July 2019, just before it was repotted. Look carefully: new areoles are lighter in colour. It appears that about 40% of the stem is new growth.



The specimen out of its pot, showing a nice root system that grew in 6 months. It looks far more presentable now. But if you were in the market for *Mammillaria* with beautiful spines, this PClav would still be an unimpressive plant. (July 2019)



Left: Potting up the PClav in a coco peat-heavy potting mix. (July 2019)

Right: The specimen about two months later in mid-September 2019.

When it was repotted in July 2019, the PClav got a potting mix consisting mostly of coco peat. During this time, I was trying to reduce the amount of organics in my potting mixtures in an effort to protect the root system of GBalds from bugs. These days I'm not so strident in doing this: I have tried jiffy peat and coco peat and both have problems in the long term after they've been baked for a while in the urban tropics. Once jiffy peat or coco peat becomes bone dry, they have problems getting wet again, and they will definitely be baked dry when there is an urban heat wave.

This commodity cacti PClav is still a small juvenile specimen and it will do well in almost any potting mix. Just remember to provide adequate nutrition by spraying or watering it. Feel free to use a soil-based mix for your PClavs as long as it drains well and has a loose texture. I suspect that one can use a rich potting mix for a juvenile PClav: PClavs and PMags produce offsets only after they mature, as far as I know, so it should be possible to push a PClav to grow fast using a rich soil mix when it is still a juvenile specimen. (But keep in mind potential problems with bugs and rich soil.)

There was little or no mealybug problem in the old pot; PClavs rarely have a problem with bugs in the potting mix. It's really easy to maintain a juvenile PClav – I do not provide very good care for my specimens and this PClav grew well. But one must still remember to spray the entire stem regularly or you will get some spider mite damage. This PClav ended up with some scars and imperfections on the lower stem *facing the wall* due to overhead water spraying missing those places (see the last picture on the next page.)



The PClav (blue arrow) in late September 2019. The rooted offset from the big PClav is the middle specimen in the tray to the right of the commodity cacti PClav.



Two views of the PClav at the beginning of December 2019, slightly over 4 months after repotting. **Right:** The side facing the wall has some spider mite damage.

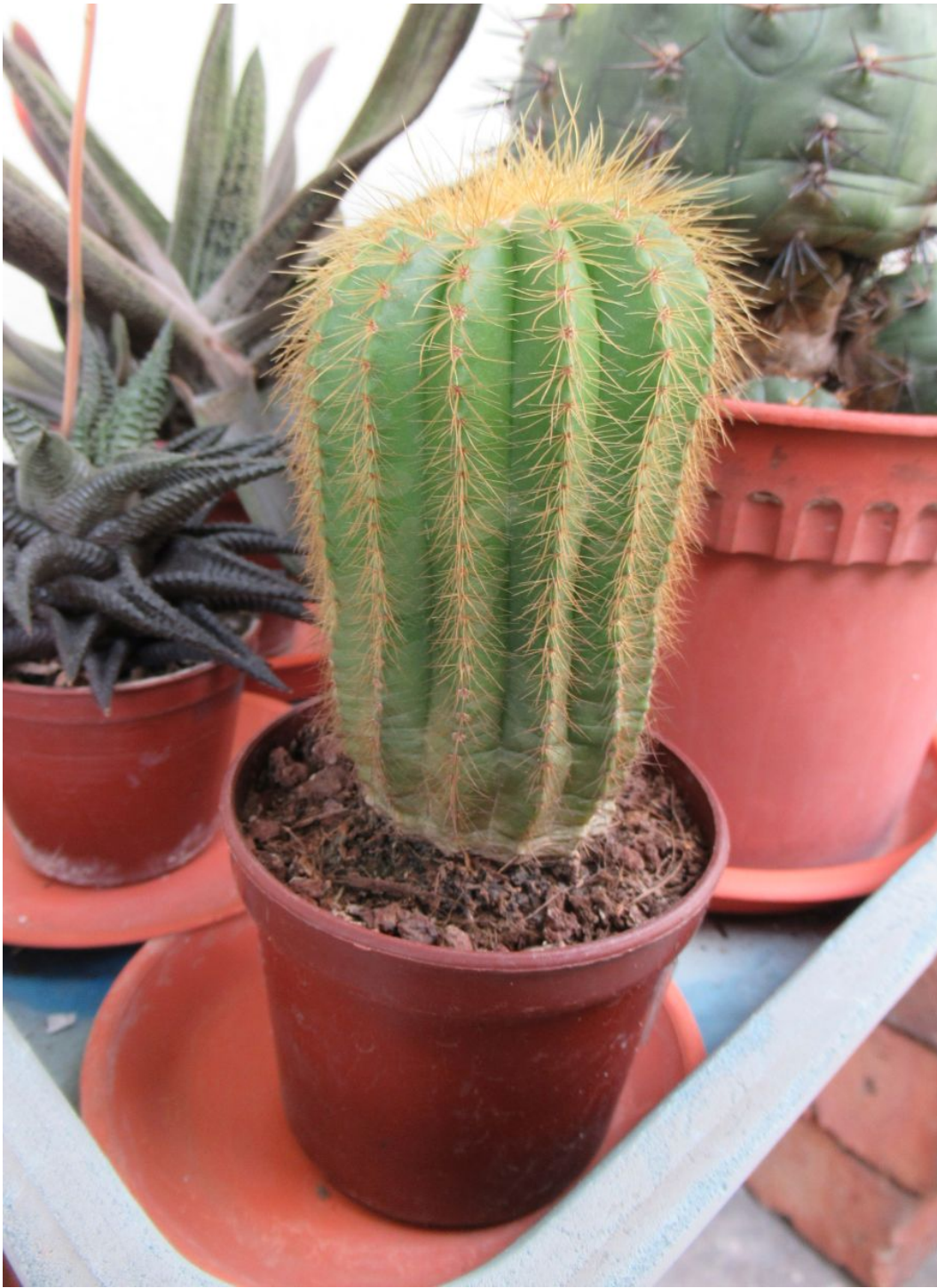


The PClav (blue arrow) after another 4 months, late March 2020. The upper stem looks a little wider than the lower stem.



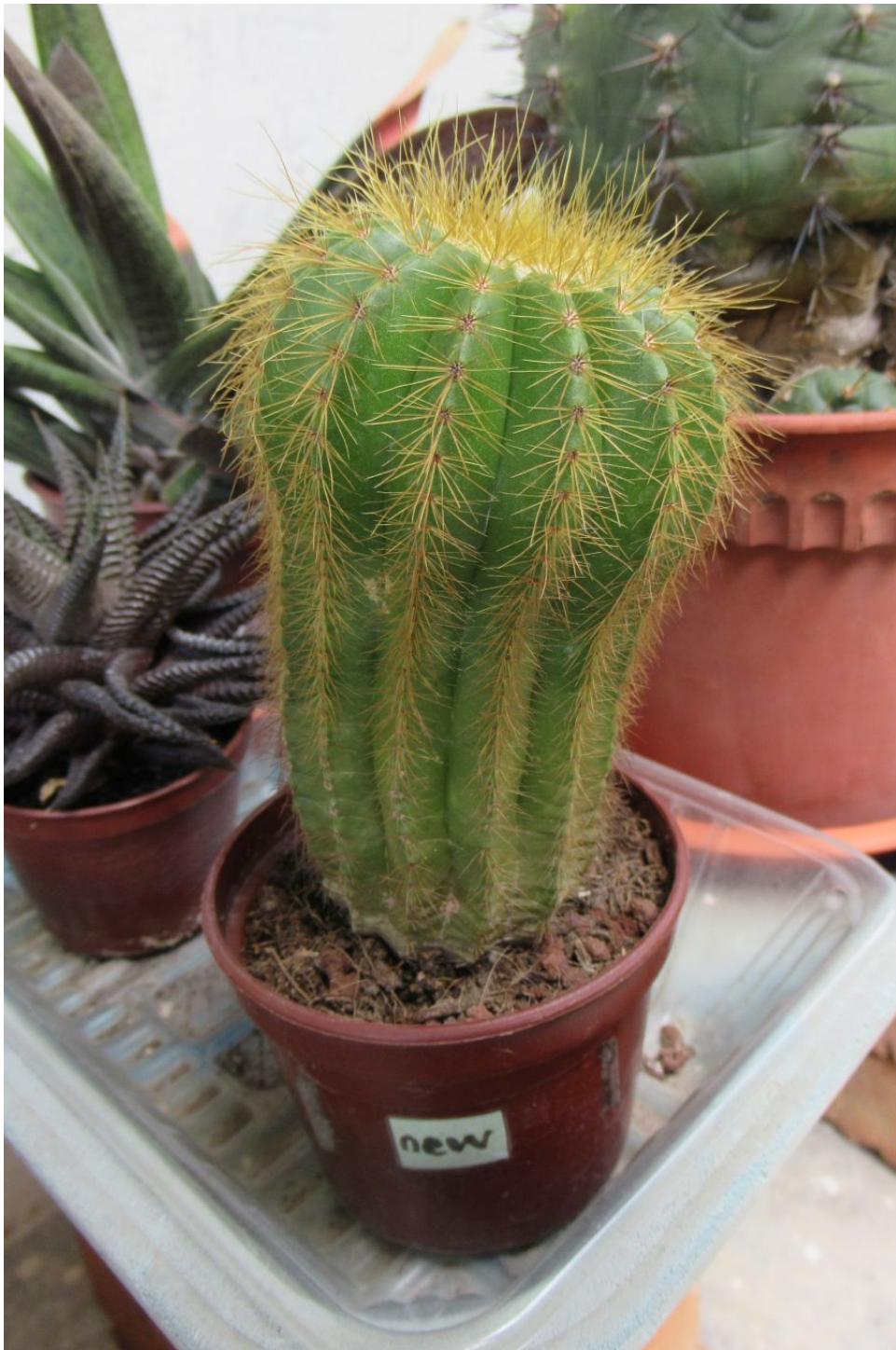
By the end of May 2020, the PClav (blue arrow) is now obviously larger.

Nearly two years after purchase, the commodity cacti PClav began to show signs of turning into a mature specimen (see picture on the next page.) The slanted growing point may be an indicator of maturity – a pleasant surprise, given that it is in a nutrient-poor potting mix. The thicker ribs of the stem may be a less obvious indicator of maturity.



In early July 2020, the PClav is now sporting an obviously slanted growing point. Mature PClavs have slanted growing points, so this may be a sign that the specimen is turning from a juvenile plant into a mature plant. Nearly the entire stem looks 'new', representing stem growth after it was purchased. The pre-purchase stem may be the lowest part that has a brownish-green colour.

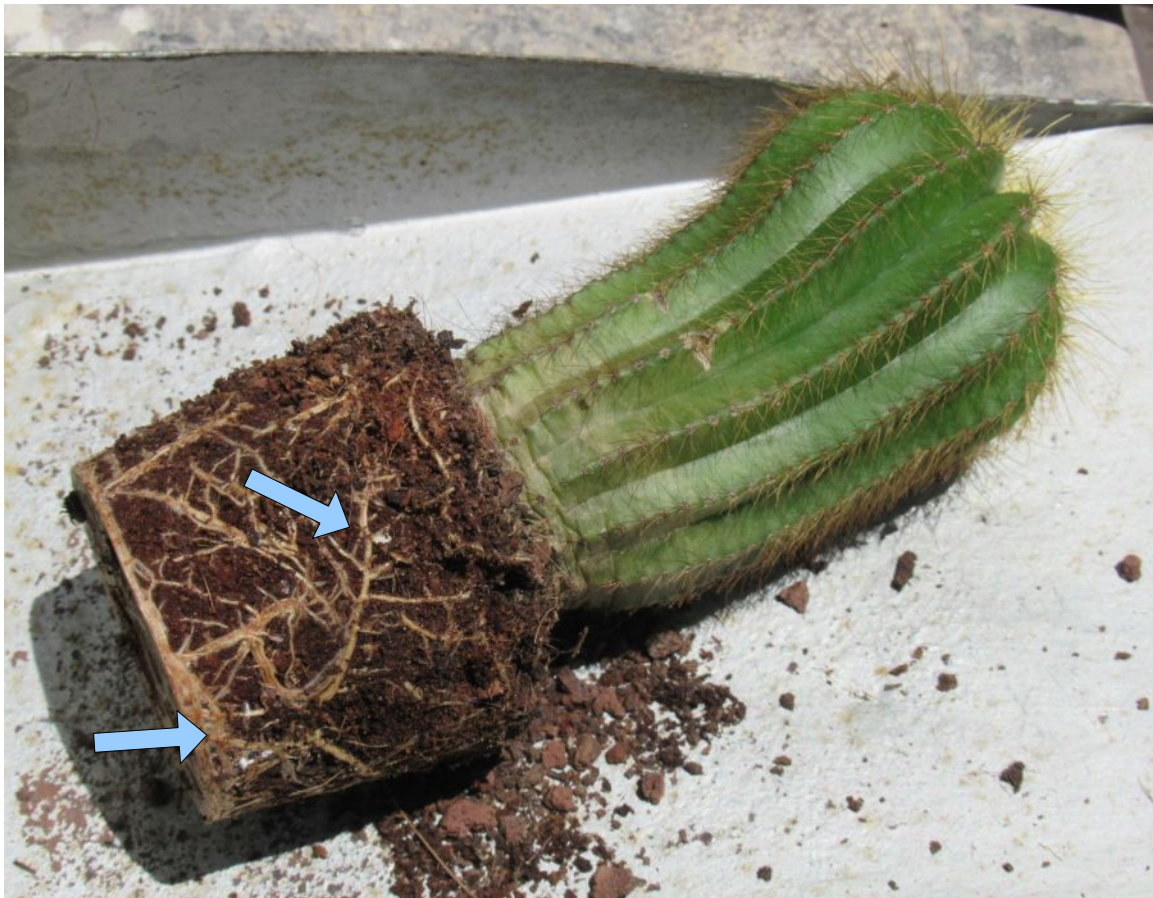
Repotting and Growing - Repeating The Cycle



In mid-September 2020, a bulging upper stem prompted another round of repotting. The PClav had been growing in this pot for almost 14 months now, so repotting isn't a bad idea after all. The slant of its growing point generally points away from the wall.



The PClav ready to be repotted. (September 2020)



The PClav out of its pot. It was somewhat pot-bound because some roots were already circling the bottom of the pot. The white flecks (blue arrows) are mealybugs – it was just a minor issue. Don't use a very rich soil and the mealybugs will most likely be kept in check. (September 2020)



After cleaning old potting mix from the roots. The coco peat-rich potting mix was still in a pretty good condition, since this specimen was in a sheltered location by the side of the house. Using coco peat is not without some risk; here the PClav's plastic pot may have been large enough to hold moisture longer. (September 2020)



The specimen was potted up in a larger pot using a loose high-quality generic soil mix, plus some pumice and scoria. It's a richer potting mix to encourage growth. I was happy to keep the shorter roots, but I removed all the long ones. (Sep 2020)



The PClav a week later in late September 2020.



In late December 2020. After 3 months, upper stem growth is evident. The growing point looks strong and healthy. The areoles and spines of a mature plant are somewhat different from the *Mammillaria*-like appearance of a juvenile plant.



The PClav (blue arrow) more than half a year later, in mid-August 2021. Two GBalds in this picture (orange arrows) were purchased in February 2021 – they are my next experiment in getting commodity cacti to flower.

After repotting, it was left to grow bigger. The PClav required no special care. All I did was provide nutrition during spraying and watering. I do a lot more spraying than watering. The specimen never got any additional pellet or granular or powder fertilizer. To protect the stem from spider mite damage, I often lifted the pot to spray the entire stem thoroughly to remove dust – this was done during regular spraying.

As long as it was steadily growing, I wasn't in a hurry to get results. After all, I am providing the plant with small amounts of nutrition, so I don't expect the PClav to do anything fast. As the months went by in 2021, it was starting to look more and more like a regular mature PClav. During spraying, I kept an eye on the growing point – it was looking more dense and compact. Also, if you compare the above to the pictures of the PClav in December 2020, you'd notice that newer areoles are whiter and hence, more wooly. I think a wooly PClav apex means that flower buds are coming.

First Flower Bud for the PClav



A flower bud was spotted in early October 2021 – barely visible in the picture.

The first flower bud was spotted about two months later. Apart from a more wooly apex, another clue to maturity can be seen in the above: A shrinking lower stem that may be turning a bit woody. Forget about its juvenile appearance; this is now about growing a mature PClav that can produce flowers.



When it first started the transition to maturity, the areoles of the PClav sported stronger spines but no wool. Later, newer areoles became more woolly, looking whiter and larger. Finally, the apex of the stem became so woolly that white bits of shed wool can be seen between the ribs. (October 2021)



Top view of the PClav showing large woolly areoles, and a dense thicket of yellow spines at the apex. Plus a flower bud, of course. (October 2021)



Measuring the PClav four days later, mid-October 2021. Its height is about 4.5 inch and its diameter is about 2.7 inch – a good size for a maturing PClav.



By comparison, these are rooted PClav offsets, seriously pot-bound as they have not been repotted as frequently. In particular, the rooted offset from the large PClav (orange arrow) has been in the small plastic pot for too long. The spines are nice, but these still look like juvenile PClavs – this is not a problem if you like the looks of juvenile PClavs, but they will *not* produce any flowers. (October 2021)



The flower bud a month later. The stem has some whitish stains – this is probably due to a silicon fertilizer that I started to use around that time. (November 2021)



Five days before opening. Unlike my other PClavs, this new specimen has prominent dark brown bristles (or soft spines) on the flower bud. Note the increased amount of wool being shed from around the apex of the stem. (November 2021)

Getting a Commodity Cacti PClav to Flower



The first flower of the PClav opening, late November 2021.

It took this commodity cacti PClav 1½ months from detection of flower bud to the flower opening. That's a little slower compared to what a large PClav can do, but since the flower is still near the apex of the specimen, there is no timing abnormality.

The PClav was purchased as a small specimen in a 2 inch pot in September 2018, so it took just over 3 years to produce its first flower. It could have been done faster given perfect care, but I wasn't interested in trying to emulate the perfect care provided by mass producers of horticultural plants. Let's just take "3 years to flower" as something a busy gardener can achieve in the urban tropics.

Also, the bulk of my gardening efforts have been spent in dealing with GBalds, so this is a great outcome given the little time I spent caring for the specimen. Give it space to grow, provide some nutrition, and help it turn into a mature plant. Use fortified water sprays to effectively get nutrition into that stem – and ward off spider mites at the same time. It can't get much easier than that.



The first flower of the PClav fully open later in the day. It's not a large flower, but often cactus flowers grow a bit each day, and the floral display will look more impressive after a day or two. (November 2021)



On the second day, the flower was a little larger and petals had a silky sheen, making the flower sort of shimmer in the sunlight. (November 2021)



PClav flowers in my collection rarely have such silky petals. I regard such flowers as a positive indicator of the plant's health. (November 2021)



The flower with its silky petals shimmering in full sunlight. Apparently, this PClav has a long-lasting flower. Or perhaps I was lucky the weather was somewhat mild. After 4 days, the flower was still open and in good shape. (November 2021)



Another view of the flower on the fourth day. The tips of the petals have begun to wilt a bit in the tropical heat. (November 2021)

I don't believe this PClav will continue to flower. There was a minor heat wave in early October 2021, and then three PClavs – including this one – that were “reluctant to flower” suddenly pushed out a flower bud each. The other two PClavs have flowered after ‘resting’ but did not do anything for more than half a year, until something prompted them to “wake up”. And so in all probability, I have an urban heat wave to thank for this flower.

This means that we will probably not get many flowers from this PClav until it is much older and larger. In the meantime, we will need to use the resting method to force it to flower. If this PClav does nothing for the next 6 months, then I would try a resting experiment.

Looking back at pictures of this commodity cacti PClav when it was first purchased, I am amazed at how far it has come in 3 years. But it's more than pretty pictures: A careful study of the pictures yielded plenty of useful knowledge about PClav behaviour, in particular the many physical changes of a specimen growing from a small juvenile into a mature plant.

Commodity Cacti PClav Performance 2022–2023



Surprisingly, it has continued to bloom. The next flower opening in early April 2022.



The flower on its second day, early April 2022.

Turns out it's still performing well. Of course, one cannot expect monthly bunches of flowers like what the big PClav can do, but I think five times in about 2 years is impressive.



The next flower of the commodity cacti PClav, late May 2022.

Left: The flower on its first day, not yet fully open.

Right: Fully open with shiny petals the next day.

Flowers in April and May may be linked to hot weather during the Chinese New Year season because the bud for the flower in April was first detected in late February. Perhaps this PClav may not flower automatically like big PMag or PClav specimens, but it's quite possible that the weather can push it past the trigger point two or three times a year.



The next bud was detected in early August 2022. Then another 2 buds appeared. I looked at my weather notes for July and August 2022, and I think these buds may have been triggered by hot weather.

Here are the 3 buds in early October 2022. It took about 3 more weeks before the flowers opened; the oldest bud opened one day before the two younger buds. The younger buds weren't detected until mid-September, so something pushed these buds to open almost on the same day.



Left: The oldest bud opened first. Here is the specimen posed with the big PClav (in the background). **Right:** With three flowers open the next day. This picture was taken just before noon and the two smaller flowers aren't fully open yet. (October 2022)



Here are the flowers a few days later, near the end of October 2022. The first flower is open on its *5th* day, while the other two are open on the *4th* day. Five days is the maximum I recorded for PClav flowers.

In this case, flower lifetime was helped by very wet weather towards the end of 2022, when it rained nearly every day. The picture was taken in the morning when it was still cool; the oldest flower quickly wilted as the sun went up. One of the other two flowers barely opened the next day.

On one hand hot weather reduces the lifetime of PClav flowers. But on the other hand, without peaks of hot weather, there may not be so many PClav flowers.

The oldest flower managed to set a seed pod, which matured in about 20 days. Here is the burst seed pod pictured around mid-November 2022.

3 months from bud to flower opening is a bit slow for a PClav flower, but this seed pod developed in about the normal timeframe.



There were two flowers so far in 2023. **Left:** A flower on its first day, early March 2023. **Right:** Another flower with fading colours on its third day, late March 2023.

In 2023, the commodity cacti PClav flowered twice in March (see pictures above.) Again, one suspects the involvement of the hot Chinese New Year weather around January to February in helping to push this specimen to produce buds. With some luck, I will try to grow this PClav until it transitions from 'triggered' flowering to 'automatic' (or monthly) flowering.



One more picture. A small PClav posing with a big PClav. One has 3 flowers and the other has 8 flowers. (October 2022)

By late 2023, the PClav has been in its pot for 3 years; it is probably pot-bound by now. In 2024, I would like to test whether it can keep to its flowering pace with pot-bound roots. ♦

Version Information

This is the December 2023 Edition of this document.

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