Practical Small Cacti Malaysia

Keep a cactus collection alive for years in the tropics. Enjoy their flowers too.

The following piece is part of a collection of writings published on the Practical Small Cacti Malaysia site.

Introduction to the Website

The above picture was taken in Klang Valley, Malaysia. If you live in a place with a tropical climate that is hot and wet all year round, and would like to grow cacti like the one above, then this website will be useful to you.

In 2017, I've enjoyed cactus flowers in January, February, March, April... well, every month from January to December. In 2018, I've enjoyed cactus flowers in January, February, March, April... well, you get the idea.

This is in a dusty suburban part of Klang Valley, close to highways and hypermarkets, and not in one of the cooler highland areas. The plants are kept by the side of a house, sheltered from rain. There is no greenhouse or any kind of climate-controlled facility. Care of the plants is imperfect. The strongest stuff that I use for bug control is a water-soluble insecticide spray widely available from any supermarket. Both bugs and fungi are well under control. What I do is a *reasonable minimum*; the results you can see in the hundreds of pictures on this website.

In the previous page, this specimen was pictured with 6 flowers. Here is the same plant 3 months later with 11 flowers. (December 2020)

There was at least one cactus flower in each month since February 2016. That's 94 consecutive months (Feb 2016–Dec 2023) *and counting*. My productive specimens are a few species of smallish ornamental cacti – I don't grow large cacti that flower in Malaysia (such as dragon fruit cactus plants) because I can't maintain large spiny cacti. This is just a bunch of cactus plants that worked really well for me. It's one solution to growing healthy and productive cacti in Malaysia.

Prior to 2022, I had been somewhat cautious about discussing my plants as a success story as there were still a lot of things that I was learning about. But I think I have managed to keep many plants healthy – with sustained flower production – over many years. This led to a major mental overhaul in how I approach cactus cultivation. I used to be really happy when I got a few flowers now and then; these days I am getting *hundreds* of flowers a year. As such it became rather difficult to keep to the tone of the earlier editions of this work.

In 4 years (2019–2022), the *Parodia* in the above picture produced at least one flower in 47 out of 48 months. Actually, this species is quite willing to flower in a tropical climate when it is of mature size and is growing well. It also needs proper *nutrition*. There is no magic potion involved – just applied science. In order to get such results, you need to understand what you are doing to your plants.

A few *Gymnocalycium* specimens, posed. (February 2020)

These grow pretty well too, and they are moderately easy to grow in the tropics – up to a certain point. Then it gets a bit complicated. Oh, most sources (books and websites) will say that this species is terribly easy to grow. But then some will also mention in passing that certain species of this genus invariably grow weak and die. Why? This is part of the ‘complication’ that we will address. This website will tell you all about the complications.

I don’t have all the answers, but as you can see in the picture above, it’s possible to coax a few flowers out of them in the evenly hot tropical climate of Malaysia. Bottom line: If you are able to deal with the complications without losing all your plants, then it is possible to sustain a collection for many years. Healthy, growing plants of good size will produce red flowers. But it may be next to impossible to keep them healthy for many years in the tropics. And half-dead plants may also produce a flower or two, so sometimes I think it’s a crazy species.

Some behaviours may be due to the urban microclimate of tropical Klang Valley, Malaysia. In addition, I think it’s possible that certain behaviours may be due to chemical (or hormonal) signalling or even microorganisms. There is also a lot of variation among mass-produced cacti of this species, so I cannot guarantee that my results can be trivially replicated by other growers – I can only say that all of this happened with my bunch of plants, and you can see the pictures and read about it here.

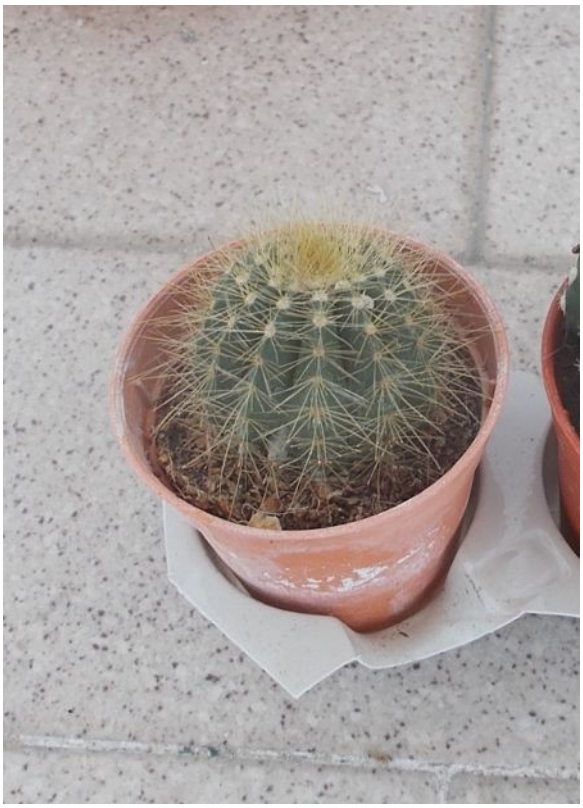
A different *Gymnocalycium* specimen with 7 flowers, taken about 2½ weeks before the posed picture on the previous page. (February 2020)

In 4 years (2019–2022), the *Gymnocalycium* in the above picture produced at least one flower in 46 out of 48 months. But it's not truly healthy, in part because all the flowers required a lot of resources. I would like to rest them, but there are complications. It's kind of a wild ride – bonkers, this species.

How does one get to this point? This is the reason for the creation of this website: *To enable others to get to this point*. Thus:

> **The purpose of this website is to communicate all the knowledge needed to enable urban gardeners living in a similar tropical climate to enjoy the same kind of success.**

'Success' here means keeping a collection of healthy plants and sustaining the collection over many years. To achieve success we must learn how some cacti behave and grow and react to care and feeding strategies. It means not buying plants and then see them shrink and grow weak. It means not having to say that you end up killing your cactus plants all the time. And if you grow the species shown in the pictures, and grow them well, you will be rewarded with many flowers.



Left: A cheap mass-market *Parodia* in a 2 inch plastic pot (September 2018). One might say that I bought a lousy cactus plant. But I got a flower out of this thing in late 2021. Really.

At a minimum, I am fairly sure that anyone in the tropics can get one or two *Parodia* species to produce their yellow flowers using this website as a guide, because I have tried it on a small specimen bought from a local plant nursery. New outside material was coaxed to flower. It works.

It was one of those mass-market cacti sold in 2 inch plastic pots. It wasn't the prettiest plant, but it was of the correct species. This specimen produced its first flower just over 3 years after purchase. It's not hard at all – it does not need a lot of maintenance, as long as you know what you are doing. This website will explain in detail how it was accomplished.

This *Gymnocalycium* took many years to get to this point. If you can keep plants healthy, one day they may surprise you. This species doesn't flower easily in Malaysia because the climate has no significant seasonal changes. (March 2017)

A different species of *Parodia* with two flowers. At the upper left, one stem of a larger specimen of the same species can be seen sporting a flower bud. (August 2019)

Another specimen with flowers. I'm sure cacti enthusiasts with some experience will be able to identify all the plants shown here. It's not rocket science; these are mostly easy-to-grow types (*supposedly*) and plenty of great articles and videos can be found on the Internet. The problem is, successful cultivation of cacti in Malaysia does not seem to be widespread. It's easy to spend money to amass a large collection of cactus plants, but how many of us are really growing them well?

A case in point: When I last visited Cactus Valley in Cameron Highlands many, many years ago, it had arguably the best display collection of cacti in Malaysia. But it was manufactured grandeur – the plants were mostly imported, maintenance was uneven, and some plants were in poor condition. So if those guys do not actually know what they are doing, what chance does the average urban gardener in Malaysia have? Usually, cactus plants in a Malaysian urban garden will languish, then decline.

Wet and battered flowers after rain. If I appear to be partial to this *Parodia*, it's because this species is the ideal pick should you want to enjoy cactus flowers in a tropical Malaysian garden. (March 2022)

Although there will be plenty of pictures of cacti in bloom on this website, not every species will grow awesomely and bloom in a hot and wet tropical urban garden. Are there a lot more pictures of other species of cacti in bloom? No, I'm afraid many species really need that winter's rest before they will flower. Or a cold season of several months' duration. For these cacti, they will just focus on growth in an evenly hot tropical climate and there will be no flowers.

Other cacti may require seasonal changes of daylight or night time hours. For example, pots of *Kalanchoe*[1] *blossfeldiana* hybrids (a succulent, not a cactus) with beautiful flowers are always on sale during major festivals. These succulents are pushed to flower (this is called 'forcing' in horticulture) by subjecting the plants to a number of weeks of increased night time hours, or darkness. The downside is that you will need to carefully research such knowledge if you want to grow your own *Kalanchoe* hybrids with amazing flowers. If these plants need lower temperatures for forcing and you are in Malaysia, then you are mostly out of luck.

Why then are my specimens flowering all the time, all year round? Well, there are reasons for such behaviour, and it will be discussed in detail later. While I don't have ironclad scientific answers, a lot can be accomplished via the use of guesswork and then, building on good guesses. After all, I didn't start with plants that flower all the time – I adjusted my cultivation practices and made it happen.

1 *'kal-an-koh-ee'*

At first glance, these *Gymnocalycium* stems may look ugly. Why are they ugly? Well, it's, ah... complicated. I'll explain everything in due course. But these cacti aren't sitting around doing nothing – even the leftmost specimen has a small flower bud. (August 2021)

We also cannot easily cultivate all types of cacti and have them look perfect. For most growers in the tropics, we should forget about aiming to grow perfect showcase specimens or competition specimens. It's not a realistic goal for the average casual urban gardener in Malaysia. I don't even care about rare cacti these days – I just stick to the stuff that works for me. And they work great.

In the tropics, there is no winter season to slow insects down. Cacti with soft skins are big juicy targets for insects *all the time*. I stopped doing battle with all that a long time ago. I only buy and grow species that are tough. That's why I use the word *practical* in the title of the website. Being practical here is the strategy of doing what works given limited resources.

Urban gardeners cannot expend the same amount of time and effort on growing their plants compared to expert growers. We are not going to recommend building a greenhouse, for instance. But professionals grow almost perfect plants all the time, witness the tens of millions of specimens in 2 inch pots that are offered for sale each year. While there is much to learn from professional horticultural practices, this site will only discuss things that are necessary from the point of view of an urban gardener with limited resources. We will not recommend things that require a big budget, plenty of time and effort (or manpower or automation) and horticultural chemicals.

The question is, what does one need to do to maintain a collection of cactus plants well over a period of say, 10 years, and maybe get to see some flowers?

If you have tried unsuccessfully to grow cacti in a hot and wet tropical lowland climate, and you are feeling disillusioned, then this website might be of use to you. If you have felt that the usual generic advice repeated by plant sellers is inadequate, then this website has a lot of detailed information about cultivation. We will discuss how to maintain some plants in *great detail*. Not just words, but also plenty of pictures. Not just pictures of specimens with flowers, but also awful pictures of dead or dying specimens.

Every specimen in the picture below – all 9 pots – has produced at least one flower before. A few were purchased as small plants years ago. Others are offsets (also called pups in botany) of the larger specimens. These cacti are really very inexpensive to grow and easy to maintain, if you understand what you are doing. This bunch is also totally free of fungicides and pesticides.

On the next page, there is a short appendix to clarify what I really mean by the “tropical climate” of suburban Klang Valley, Malaysia. Without more detail, ‘tropical’ can be quite ambiguous.

Finally, a weaselly disclaimer from a weasel: The information presented here is not infallible and should not be regarded as scientifically rigorous. I’m just an urban gardener trying to decipher the hows and whys of cactus cultivation in the tropics. Think of the material here as a roadmap to help you in troubleshooting and improving your cacti collection. ♦

A bunch of *Parodia*s. It’s all yellow flowers here, but I’m not complaining.
(October 2020)

Appendix: Some Notes on the Microclimate of Suburban Klang Valley, Malaysia

According to the Wikipedia page on Köppen climate classification[2], all of Malaysia (both East and West Malaysia) is classified as type *Af*, which denotes *tropical rainforest climate*. In the past, the term *equatorial climate* was also used for this climate type, but it doesn't seem to be very popular these days. I will stick to 'tropical' and fill in the microclimate details in this appendix.

The trouble with the Köppen classification is that it works fine for the natural world, but does not fully capture the behaviour of the weather in an area that is largely developed. There are still a lot of rainforests in West Malaysia, but modern development tends to turn the land into a concrete jungle.

According to a climate website, the average temperature in my area is about 26 °C, with a daily range of 23 °C to 30 °C. It doesn't veer much from this range throughout the year. In a sea of brick-and-concrete homes, daytime temperature is usually 30 °C or more in an upstairs room of a 2-storey house. One of these days I will collect some data myself, because I want to understand the actual environment that my plants are in. Air temperatures alone do not tell the whole story. As a start, I am using an infrared thermometer gun (a UNI-T UT306C) to measure surface temperatures.

Using an infrared thermometer gun (March 2023). The sunlit surface of the large *Parodia* is about 52 °C at around 12 noon on a clear sunny day. But it was only 30 °C under a covered front porch. The shaded stem's surface at left was about 40 °C. Small specimens in small pots won't do well in a spot with a lot of direct sunlight.

2 https://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification

So it's more like 'tropical *concreteforest* climate' instead because modern suburban Klang Valley isn't very green at all. Gardens in housing estates aren't big, and the trend with many folks is to replace grass lawns with something that is maintenance-free – usually concrete or tile driveways. Because of this, Klang Valley is becoming more and more prone to bouts of heat waves.

The remaining trees and grass isn't enough. Once hot weather evaporates most of the available moisture, air temperature shoots up quickly, because there is nothing much left to evaporate to carry the heat away. During some heat waves, the wind can heat your face instead of cooling your face[3]. Indoor temperatures will reach 35 °C or more[4]. The cactus plants outside have to endure higher temperatures if they are in sunlight. And so the 'tropical *concreteforest* climate' regularly morphs into its dark side: the 'tropical *concretedesert* climate.'

Take a close look at the sunlit middle stem in the picture on the previous page. The weather changed too quickly for the *Parodia*, going from wet and mild conditions to hot and dry in maybe two days. This caused a bit of sunburn on some of the specimen's ribs[5]. It's the abrupt change that caused the problem, because at other times these specimens can handle the heat just fine.

Rainfall is probably between 2000 mm to 2400 mm. The middle of the year tends to be drier while November and December tend to be the wettest months. Subjectively, I think rainfall has been less predictable in recent years, perhaps due to the increased heat island effect of all that concrete. Rainfall isn't an issue for me as most of my plants are under shelter – it's easier to control nutrition without the rain washing nutrients away. My cactus specimens do fine in normal weather conditions.

In this microclimate, the main weather-related threat to my plants are the *heat waves*. During a heat wave, suburban Klang Valley is really a concrete desert. The sun's heat is about 1 kW per square meter on a clear day[6]. Without water, you cannot easily remove that amount of energy. While the larger cactus plants are usually okay, it's not a benign environment for the smaller ones.

Heat waves also damages modern potting mixes. A heat wave can quickly dry out and 'bake' the potting mix in a pot, even if the pot is situated indoors near a window. For cactus seedlings, healthy roots are critical for stem growth, so leaving them in a container of baked potting mix that can't get properly moist amounts to a death sentence. I've killed lots and lots of cactus seedlings that way. In a place like suburban Klang Valley, we must pay attention to the weather.

All of this will be discussed in detail in the many chapters on this website. ♦

3 Hilarious when you consider that I live in a city that's supposed to be something of a modern role model for other cities in Malaysia. The city planners, I guess, have never studied thermodynamics.

4 See also: `https://www.met.gov.my/en/iklim/status-cuaca-panas/`
Singapore's standards are broadly similar: `http://www.weather.gov.sg/learn_phenomena/`

5 It's also called leaf scorch, sunscald, bleaching, etc. In this case, the bleaching is relatively minor. Some green chlorophyll was lost, but generally this specimen will fully recover from this kind of mild bleaching.

6 It's an easy-to-remember number. See also Standard Test Conditions (STC) for solar panels.

Version Information

This is the December 2023 Edition of this document.

Every released PDF can be found at: `https://www.mysmallcacti.net/`

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Colophon

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