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SEPTEMBER-OCTOBER 2020

# Kaktos Komments

a bimonthly publication of the Houston Cactus and Succulent Society  
to promote the study of cacti and other succulents



*Euphorbia ritchii* cyathium  
by Irwin Lightstone

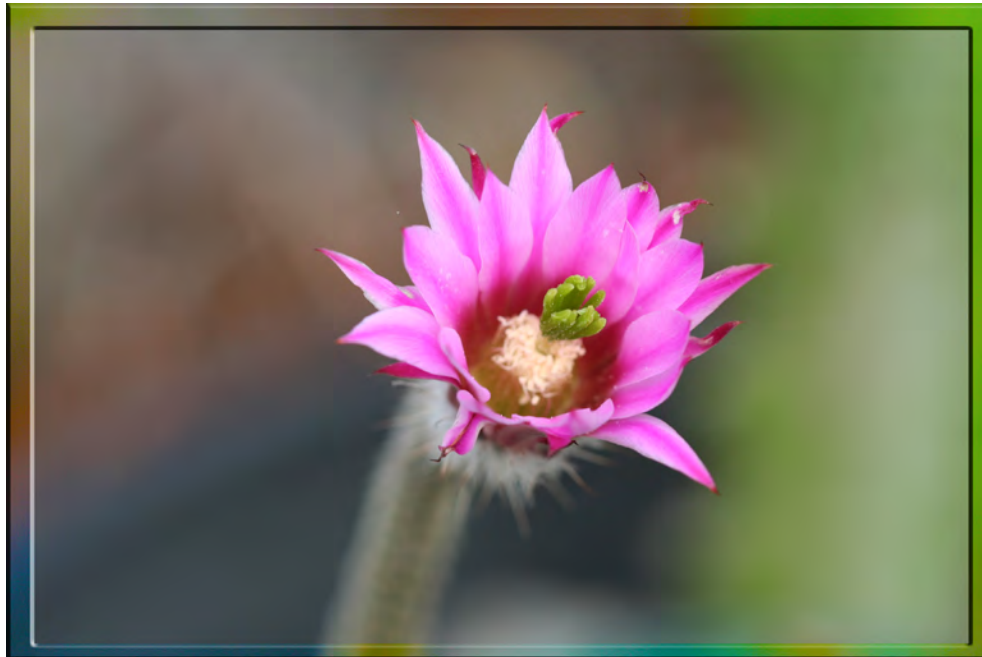
**From the editor**

Karla Halpaap-Wood

I want to thank Chaden Yafi for her interesting article on the Fibonacci sequence, Irwin Lightstone for letting me use one of his outstanding photos for the cover and all others who wrote plant of the month articles.

I hope you enjoy this KK and get inspired to contribute too.

We had a meeting via Zoom in July with up to 19 members participating, so far the most. The program was on tissue culture. <https://www.youtube.com/watch?v=qDOGrEhUe8A>



*Echinocereus poselgeri* - Karla Halpaap-Wood

Please send news of HCSS members or their families to [kathyfewox@gmail.com](mailto:kathyfewox@gmail.com) or [Saint.juniper@gmail.com](mailto:Saint.juniper@gmail.com)

**Calendar:**

**September 9, 2020** 7:30 pm Board Meeting via Zoom

**September 23, 2020** 7:30 pm Membership Meeting via Zoom  
Program: Rooting from leaves in leaf succulents by Wally Ward

**October 28, 2020** 7:30 pm Membership Meeting  
Program: TBA

**November 1, 2020** Deadline to submit articles for the next KK

**September Cactus of the Month****Liliana Cracraft*****Gymnocalycium damsii* var. *tucavocense* Red Form**SYNONYMS: *Gymnocalycium anisitsii* var. *tucavocense*

COMMON NAME: Chin cactus



HABITAT/DISTRIBUTION: Garden origin (Nursery produced cultivar)

**DESCRIPTION:**

This eye-catching plant is characterized by an unusual bright red coloring of the body. This color is due to a reduced production of chlorophyll pigments; nevertheless the plant can normally do photosynthesis and grows normally from seeds. The stem grows up to 10 cm (3.9") tall, 8-15 cm (3-5.9") in diameter colorful and highly decorative, with characteristic horizontal clear and dark red strips. The clear areas (above the areoles) are pastel-pink, while the areas below the areoles are deep purple. This plant bears curious protuberances or "chins" under each areole.

The most important characteristics of *Gymnocalycium* are the smooth flower buds and the flower tubes. They arise from the top of the plant in a circle around the crown. The flowers are beautiful and large for the size of the plant. They are pale pink in color, and last for a few days. They can be solitary or the plant can have 2 or 3 at the same time. The spines are small and bristle-like. The fruits are oblong, red in color, and provide plenty of seeds, but the plant can be propagated from its offsets.

**CULTIVATION/GROWTH:**

*Gymnocalycium damsii* var. *tucavocense* is a summer grower species that is easy to cultivate. It is a relatively easily flowering species that will make clumps given the best conditions. The plant tolerates extremely bright situations but enjoys filtered sunlight or afternoon shade, inside it needs bright light, and some direct sun. Tends to bronze in strong light, which encourages flowering and heavy spine production, but is likely to suffer from sun scorch or stunted growth if over exposed to direct sunlight during the hottest part of the day in summer.

**Soil:** It likes very porous standard cactus mix soil. Prefers a low pH compost, avoid substrata rich in limestone; otherwise growth will stop altogether.

**Repotting:** This plant needs plenty of space for its roots. Repotting should be done every other year or when it has outgrown its pot. Use pot with good drainage.

**Watering:** Needs moderate to copious watering in summer, but do not overwater (Rot prone). Keep dry in winter at a minimum temperature of 0°C.

**Fertilization:** Feed with a high potassium fertilizer in summer.

**Hardiness:** Reputedly resistant to frost if kept on the dry side prior to, and during, cold weather (hardy to -5°C or less for short periods).

**Pests & diseases:** It may be attractive to a variety of insects, but plants in good condition should be nearly pest-free, particularly if they are grown in a mineral potting-mix, with good exposure and ventilation.

#### AVAILABILITY:

I do not remember where I purchased this plant, but I know from my photos files, that I acquired it in 2015. I found a website (mycactusplants.com) that advertises the plant for sale but Beware! My computer security system marked this place as “not secure.”

#### REMARKS/COMMENTS/MY EXPERIENCE:

My plant was green when I first got it in 2015, and three years later started to turn red.



It has 7 ribs, each with 6 areoles. Each areola has 4-5 thorns. The thorns on the top of the plant are much larger than the others.

Most years it has bloomed from March through July, but on occasion it has bloomed in August (2019), and as late as October (2016). Being a plant developed in a nursery, not much has been published about it.

#### REFERENCES:

Encyclopedia of Cacti. Llife.com/Encyclopedia/CACTI

## September Succulent of the Month

Wally Ward

*Haworthia retusa* (L.) Duval var. *retusa* Bayer**Synonyms:**

- Aloe retusa* L.
- Aprika retusa* (L.) Wild
- Catevala retusa* (L.) Medik
- Kumena spicata* Raf.

**Common Names:**

- Star Cactus

**Habitat/Distribution:**

--Endemic to a small area around Heidelberg and Riversdale in Western Cape Province, South Africa.

Grows on clayey hills under bushes or among stones

in undisturbed places where original vegetation remains. The seeds I ordered from Mesa Garden in 1998 were catalogued as "*Haworthia retusa* Kransrivier." I checked with Mesa Garden through our member Richard Stamper back in the early 2000s and learned that Kransrivier is a small river in western Cape Province. With services such as Google Maps I recently obtained a map image of Kransrivier, where these seeds originated. The species overlaps and intergrades with *H. turgida*, *H. mutica*, and *H. retusa nigra*. It also is distributed near the habitat of *H. magnifica*, and hybrids with *H. magnifica* have been observed.

**Description:**

--Consists of stemless or almost-stemless, shiny-green, star-shaped rosettes, short and plump, with 10 or 15 leaves, turgid and rigid, with retuse (fenestrate, or windowed) leaves, the rosette being 10-15 cm (4-6 inches) in diameter. The "windows" at the ends of leaves are nearly translucent, having pointed tips with lines and veins, and the plant is often found buried up to the windows in the ground: a xerophytic adaptation to dry habitat. Below the windows is water-storage tissue that also distributes sunlight around to the photosynthetic tissues.

The plant rarely offsets and will do so, if at all, when the plant is old. The inflorescence consists of a flower stalk about 30 cm (12 inches) long with 20-to-30 small, short-lived flowers. The flowers are white with greenish-to-brownish veins. Flowering occurs in late spring to summer. *H. retusa* and its varieties constitute one of the most morphologically variable *Haworthia* species, comprising many forms in which each form is linked to others by populations of plants with intermediate populations. Bruce Bayer considers the parent species to be distinctive, and some authorities warn purchasers to beware of marketing of *Haworthia*



*turgida* (third photo with this article) as *H. retusa*.

The *H. retusa* plant I have photographed here (first and second photos) is an offset that occurred last year shortly before I lost the 22-year-old parent plant and is hence somewhat etiolated at this time; but I included a photo of one of the early leaves (second photo) to show the triangular shape of the window in a conventional leaf.

### Cultivation/Growth:

--This is an easily-grown and maintained plant. It first came into cultivation in the early 19th Century. It thrives in partial shade mixed with bright light but protected from the hottest rays of sunlight. Since it is shallowly rooted, it should be grown in shallow pots. *H. retusa* makes a good windowsill plant with direct light filtered through a window screen and protection from strongest sunlight. The plant will do well outdoors in Zones 10-11 if protected from direct sun. but Houston is in one of the Zone 9 subzones, so beware of temperatures below 50 degrees F. The plant will tolerate underwatering but never overwatering (watch out for yellowing leaves as a symptom of the latter). I water every 10 days in summer and around every three-four weeks in winter, BUT ONLY WHEN THE SOIL IS COMPLETELY DRY.

### Availability:

--There are numerous purported sources for sale of *H. retusa* online, but I am most comfortable dealing with vendors which advertise in the CSSA Journal.

If you feel adventurous, join the Haworthia Society through its US representative, get the basic import license from the USDA, and order from the Society's remarkable periodic seed offerings of *Haworthias*, *Gasterias*, etc.

### References:

--Llifle: [http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Aloaceae/16708/Haworthia\\_retusa](http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Aloaceae/16708/Haworthia_retusa)

--Bayer, Bruce. *Haworthia Revisited: A Revision of the Genus* ( Hatfield S.A., Umdaus Press. 1999).

Bayer, M.B. & Manning, J.C. (2012) A rationalization of names in *Haworthia*. A list of species with new combinations and new synonyms. *Alsterworthia International* 12:7-16.



## October Cactus of the Month

Chaden Yafi

### *Stetsonia coryne*

**Family:** Cactaceae

This cactus is monotypic, it is the single species in the genus *Stetsonia*.

**Common name:** Toothpick cactus.

**Habitat:** Argentina, Bolivia, and Paraguay.

**Name origin:** the *Stetsonia* cactus was named after the American lawyer Francis Lynde Stetson (1846-1920) who lived in NYC and was passionate about gardening, plants, and botany. He was also an administrator of the New York Botanical Garden and had participated in the negotiation for the Panama Canal.

“Coryne” from Greek “Koryne” meaning pestle, in reference to the look of the seedlings.

**Cold hardiness:** 18F if kept dry but for a short period of time.

#### **Description:**

The SC cactus can grow up to 25 feet with 8-10 ribs for the mature plant.

The stem has a beautiful blue green or dark green color. Its most noted feature is its very long spines, they can be as long as 4 inches. These spines are black in young plants but turn gray with age (just like human’s hair.) The sharp spines serve as a way to protect the cactus from animals, control temperature, and to capture droplets of water from the air.

As this cactus gets older it can produce branches. When it is more than 25 years old, it gives a white flower in the summer that turns into an edible fruit.

#### **Personal experience:**

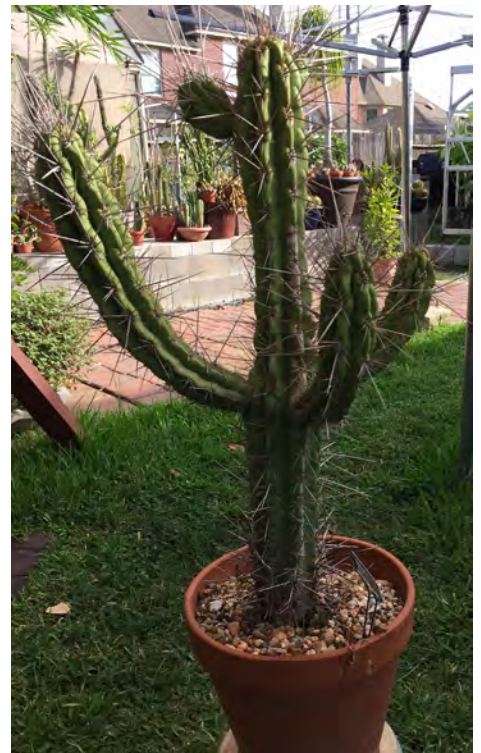
I fell in love with the look of this cactus when I saw it for the first time at an Ikea store! I had never seen such large spines on a small cactus! I bought it and it proved to be one of the easiest and most trouble free cacti I have ever mothered. Like all cacti, it needs well drainage soil. When I repotted it, I did not add any perlites to the commercial cactus soil bag! Nevertheless, it thrives beautifully, and didn’t seem to mind Houston’s frequent rain. It is now in a spot where it gets full sun, and in the winter I bring it inside.



#### **References:**

<https://cactusclassification.science/stetsonia/>

<http://www.foudecactus.com/article-stetsonia-coryne>



large stetsonia - Karla Halpaap-Wood

## October Succulent of the Month

Liliana Cracraft

NAME: *Euphorbia schimperi*

## INTRODUCTION:

*E. schimperi* was first described by Czech botanist Carl Borivoj Presl in 1845. It is a rare plant and not much has been published about it.

## DISTRIBUTION:

*Euphorbia schimperi* is native to the South of the Arabian Peninsula. In Yemen, it's widely distributed in the province of Taiz, and often abundant on open stony hills between 1000-2000 meters (3280-6500 ft.) above sea level, such as Jabal Qara. It is also found in Socotra and Somalia.

## DESCRIPTION:

This erect shrubby succulent is a perennial plant with a relatively large base and stout branches. The long decumbent or ascending branches are often forming thickets (or clumps). The leaves and bracts are small, oval shaped to sword-shaped, and quickly deciduous, leaving the plant with a dense arrangement of upright branches. It can reach heights of 1 to 1.7 meters (5.6 ft.). The cyathia are yellow and measure 7 mm wide. The fruits are inflated-looking round and reddish, and measure 1 cm in diameter.

## GROWTH:

This plant grows very slowly. We use a regular cactus and succulents soil mix and water it once a week in the summer months. We water it less often in the fall, winter and spring.

## INTERESTING FACTS:

This is the first time this plant has been presented as the succulent of the month at HCSS. It is protected by CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention).

## MY EXPERIENCE:

This plant was acquired by my husband from Arid Lands about 25 years ago. It measures 2 feet 8 inches. We have had flowers (usually in November), but have never seen any fruit. The tips of some of the stems sometimes dry up and die. This plant looks similar to *Euphorbia antisiphylitica* (Candelilla). Arid Lands has this plant for sale as seedlings in 4 inch pots for \$9.00, or as rooted cuttings in 1 gallon pots for \$12.00. It has never been presented as a Succulent of the Month in the history of the club.



REFERENCES:

- Collenette, S. Wildflowers of Saudi Arabia. National Commission for Wildlife Conservation and Development (NCWCD). Kingdom of Saudi Arabia. 1999.
- Wood, R.I. A Handbook of the Yemen Flora. Royal Botanical Gardens, Kew. Whitstable LithoPrinters, U.K. 1997.



## A Mathematical View of Cacti

Chaden Yafi

“Beauty — be not caused — it Is” wrote the American poet Emily Dickinson. However, throughout history many thinkers, philosophers, mathematicians, and scientists have speculated whether there can be certain criteria, patterns, or proportions which make objects, in nature and art, seem more beautiful and attractive to our eyes.

Talking about proportions and ratios will ultimately lead us to talk about mathematics. It might be interesting for cacti lovers to know that their beloved plants grow according to a mathematical sequence that was discovered in the 13th century! The sequence was named after the mathematician who discovered it: Leonardo Fibonacci (1175-1240.)

In the coming paragraphs I will give a background for this mathematical sequence and examine some studies that applied it to cacti. I will end the article with my own personal observations using examples from my collection of cacti.

Since Pythagoras (560-480 BC), many mathematicians and philosophers believed that the universe was based on a harmonious organization of numbers. The most mysterious and magical number that puzzled them and occupied their minds was called the Golden Number, symbolized by the Greek letter Phi  $\Phi$ , and  $\Phi = 1.618$ . This number was considered a universal symbol of perfection in life and art.

The Mathematician Leonardo Fibonacci was born in Pisa and traveled to Morocco, Egypt, Syria and Greece to acquire knowledge before returning to Pisa. In 1202 Fibonacci published a book on mathematics in which he translated the information he had collected, using Arabic numbers and utilizing Zero. In this book he presented for the first time the series which later became known as Fibonacci Numerical Sequence:

In this sequence each number is the sum of the two preceding numbers: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, etc.

When we divide any two successive Fibonacci Numbers, their ratio approaches ever closer to the Golden number Phi  $\Phi$ :

$$3/2 = 1.5$$

$$5/3 = 1.6666666666\dots$$

$$8/5 = 1.6$$

$$13/8 = 1.625$$

$$21/13 = 1.615384615\dots$$

....

$$233/144 = 1.618055556\dots$$

$$377/233 = 1.618025751\dots$$

The fascinating and mysterious thing about this sequence is that it can be found throughout nature, and reflected in countless works of art since antiquity. The human body is illustrative of this: 2 hands and 5 fingers; with each finger in 3 parts with 2 knuckles (2,3,5). The length of the hand in relation to the forearm realizes the proportion as well as the length of the torso in relation to the whole body height. In nature, there are abundant examples. It has been found that the number of the petals in most flowers follows the numbers of Fibonacci Series as most flowers have 3, 5, 8, 13, 21, 34... petals. Flowers that have 4 petals, for example, are relatively rare. Also, the way leaves grow on the stem of some plants reflects a Fibonacci sequence, and pinecones display a number of spirals that follows this series.

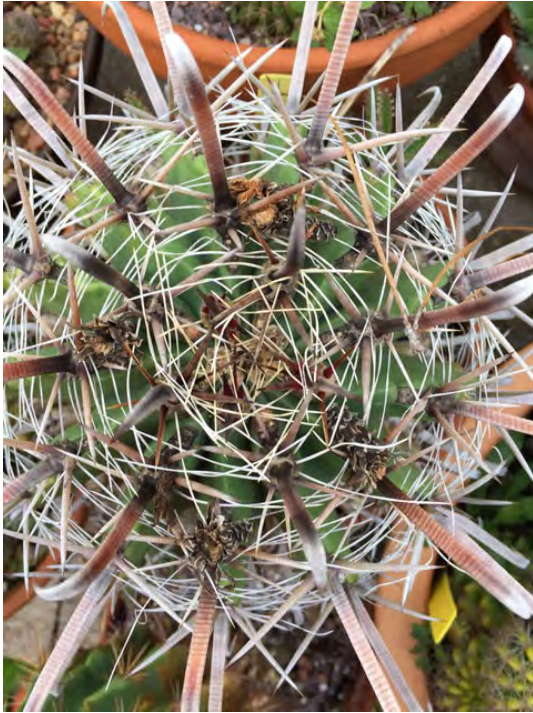
Fibonacci, of course, had never seen a cactus, as these plants came to Italy with the discovery of the New World. However, since the last century many studies have been done to investigate if cacti manifest this sequence.

Researchers at the Philip L. Boyd Deep Canyon Desert Research Center in the Sonoran desert have studied a sample of one hundred randomly picked *Ferocactus acanthodes* to see if the number of ribs is random, or constant, or follows a certain order. The result showed that the rib growth on these cacti follows the Fibonacci

sequence: 1, 1, 2, 3, 5, 8, 13, etc.

Intermediate numbers of ribs that did not belong the Fibonacci sequence were found in the specimens that were going through a transitional period of growth.

The study could not find the reason why this particular cactus is constrained to Fibonacci sequence in the growth of its ribs. Suggestions of optimal geometrical organization that favored light perception, or ideal arrangements of seeds were dismissed.



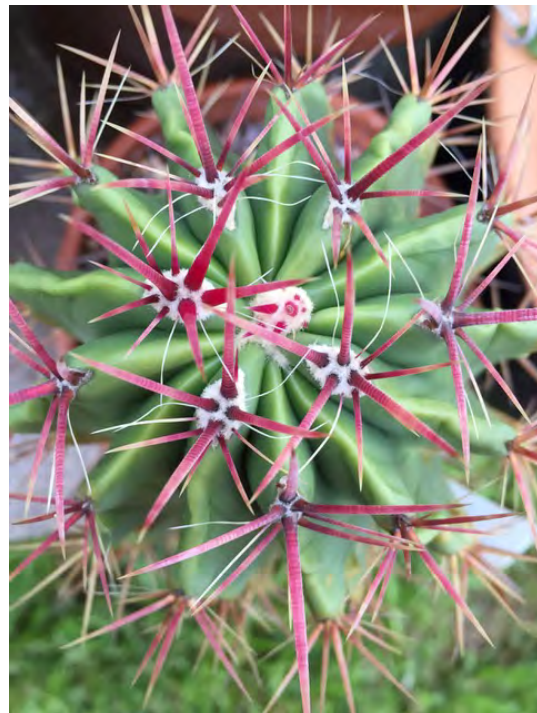
*Ferocactus herrerae*, 13 ribs



*Ferocactus hamatacanthus*, 13 ribs



*Ferocactus echidne*, 13 ribs



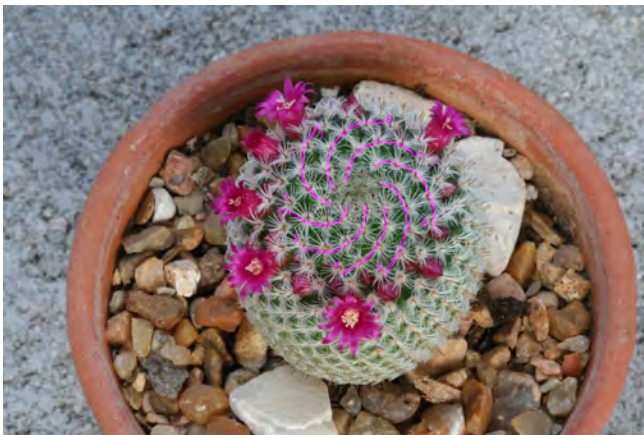
*Ferocactus pilosus*, 13 ribs

Photos on this page by Karla Halpaap-Wood

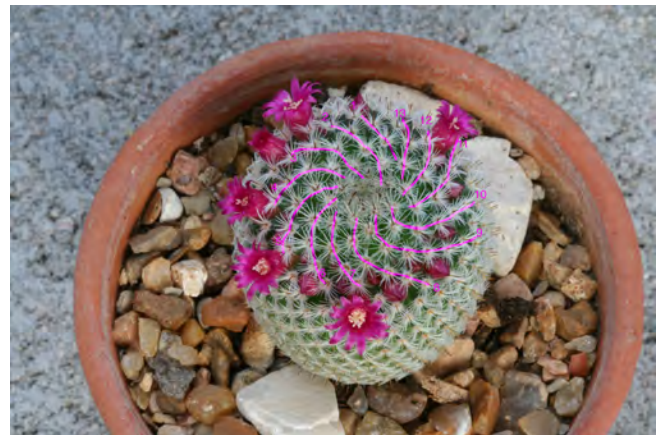
Other studies have shown that the arrangement of the tubercles on *Mammillaria* cacti, whether clockwise or counterclockwise, create spirals that are not random but restrained to Fibonacci sequence. For example, if 5 rows of tubercles of a *Mammillaria* are twining one way there must be 8 rows twining the other way! Or 8 and 13, or 13 and 21 and so forth!



*Mammillaria haageana*, left in 2007, right same plant in 2020  
photos by Karla Halpaap-Wood



*Mammillaria haageana* 2007 clockwise, 8 spirals



*Mammillaria haageana* 2007 counterclockwise, 13 spirals



*Mammillaria haageana* 2020 clockwise, 13 spirals



*Mammillaria haageana* 2020 counterclockwise, 21 spirals

The Mammillaria cacti are so consistent in showing the Fibonacci sequence that the ratio numbers they exhibit serves as a way of identification of their types. This was demonstrated in the Mammillaria Handbook by Robert T-Craig (*Mammillaria ritleriana* 21:34, *Mammillaria elongate* 8:5, etc.)

Many succulents also show the numbers of the Fibonacci sequence, such as the spirals of *Aloe polyphylla*, *Echeverias*, *Aeoniums*, and *Pachyphytums*.

On a personal level, I have been trying for a while to detect if the cacti I own exhibited the Fibonacci numeric sequence. Which ones show the Fibonacci numbers and which ones don't!

The first cactus I examined was the *Mammillaria hahniana* and I counted the spiral both counterclockwise and clockwise many times. I always got 13, and 8! (photo1, and photo2)

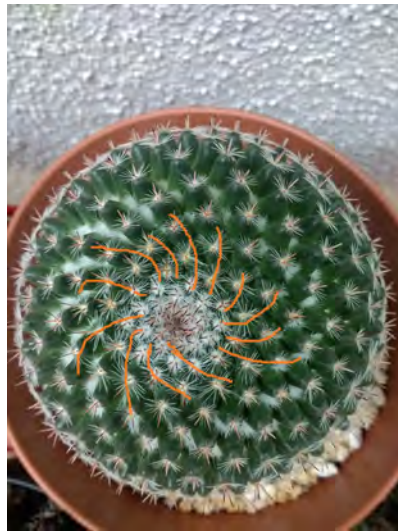
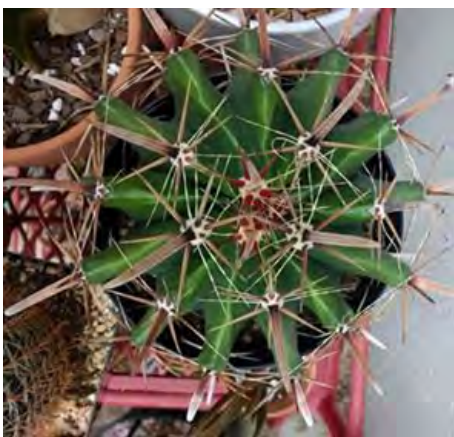
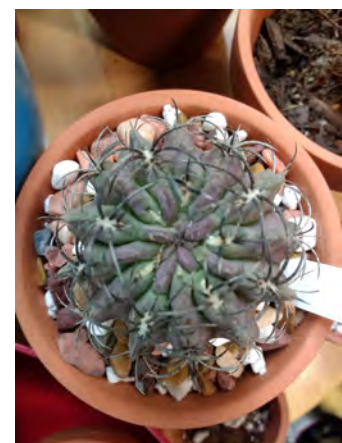


photo 1



photo 2

I also have been counting the ribs of various types of cacti, and found that the most do follow Fibonacci such as in my *Ferocactus wislizeni* that has 13 ribs, I asked another HCSS member to count the ribs on his older *Ferocactus cylindraceus* and the result was 21 ribs. The *Gymnocalycium horstii* has 5, and *Eriosyce curvispina* has 13 and the *Notocactus Magnificus* "Balloon Cactus" has also 13 but not sure if it will grow more ribs with time. The *Astrophytum myriostigma* has 5 ribs and each one is divided into two segments, both 2 and 5 are Fibonacci numbers

*Ferocactus wislizeni* 13 ribs*Ferocactus cylindraceus* 21 ribs by David Van Langen*Eriosyce cactus* 13 ribs



Baloon cactus three flowers

Copiapoa triple bloom

One flower astrophytum

two flowers on gymnocalycium

When counting the numbers of ribs I mostly I got 5 or 13, both numbers from the sequence!

I have been also observing the number of blooms that appears on my cacti. In most cases I would get numbers of blooms from the Fibonacci numbers, such as in the *Gymnocalycium*, *Parodia*, and *Copiapoa*, they always gave 1 or 2 or 3 blooms at a time. However the *Echinopsis* and *Rebutia* cacti were an exception and seemed to produce 4, 6, or 7 flowers at a time!

Observing cacti from a mathematical view made me pay more attention to their details and admire their patterns and geometrical shapes. At times they appeared to me as artistic sculptures. The goal of my endeavor was not to try to prove a fixed formula of their growth or measurement of their beauty, it was to enhance the aesthetic contemplation and the various ways we can experience beauty and order in these magnificent plants. This might also open the doors for further research and investigations both in succulents and cacti.

Scientists and mathematicians are still going in circles (or should we say spirals) trying to find the reason why most plants grow according to Fibonacci patterns. Many attempts to solve this mystery are still being carried on but without any convincing results. Does the Fibonacci sequence play a role in plants' survival in a way that gives evolutionary advantage to plants that grow according to this sequence?

It is said that math is the language of science, yet science could not fully explain this mathematical "contract" in nature.

Perhaps we should love these unanswered questions themselves and instead of finding keys to this mystery embrace it as a unifying harmony that connects all beings in the universe.

#### Bibliography:

Blackwell, A. F. "Genetic Curves in Nature and Art—with Special Reference to *Mammillariae*." *The National Cactus and Succulent Journal* 9, no. 1 (1954): 12-14.

Cheason, Denis. "Maths and Mamms." *British Cactus & Succulent Journal* 8, no. 3 (1990): 81.

Craig, Robert T. *Mammillaria Handbook*. UK: Micro Methods Ltd., 1963

Mrinskii, V. I., Colin Walker, W.C.K., and C.C.W. "The World of Succulents." *British Cactus & Succulent Journal* 1, no. 3 (1983): 53-54.

Robberecht, R., and P. S. Nobel. "A Fibonacci Sequence in Rib Number for a Barrel Cactus." *Annals of Botany* 51, no. 1 (1983): 153-55.

## THE CACTUS AND SUCCULENTS SOCIETY OF AMERICA



Founded in 1929, The Cactus and Succulent Society Of America (CSSA) is a worldwide community of avid gardeners, hobby and commercial horticulturists, nurserymen, and professional scientists who all share an appreciation for cacti and other types of succulent plants.

Membership allows you to

- Receive the high quality Cactus and Succulent Society Journal, and the e-newsletter To the Point, published four times annually.



- Participate in the CSSA Biennial International Conventions. The one for 2021 will be held in Colorado Springs, CO.
- Participate in CSSA's members-only field trips to native habitats of cacti and other succulents.
- Access the CSSA rare Seed Depot, only available to members. Packets are only \$1.25 plus shipping.
- Support CSSA's mission to support the cactus and succulent community through education, conservation, scientific research, and research grants.

Consider joining CSSA in 2021 for \$50 per year. Please visit their web-page at: <http://cactusandsucculent-society.org/>

If you have questions, comments, or problems using the shopping cart, please contact: Gunnar Eisel Executive Director, CSSA [gunnar.eisel@gmail.com](mailto:gunnar.eisel@gmail.com)

**COOKING WITH CACTUS****LILIANA CRACRAFT****Prickly Pear Cactus with Ground Beef (Nopales con Carne Molida)****Ingredients**

2 lb. of tender prickly pear cactus in thin slices  
 Salt and pepper to taste  
 1 onion  
 4 stems of cilantro  
 2 tablespoon of cooking oil  
 1 clove of garlic, chopped  
 2 lb. of ground beef (Sirloin)  
 2 basil leaves  
 1 lb. tomatoes

**Preparation**

Cook the prickly pear strips in boiling water with salt, 1/2 onion and cilantro for about 15 minutes. Once they are cooked, drain them well and remove the onion and cilantro. They can also be slightly rinsed if desired.



In a blender, place the tomatoes, the other half of the onion, salt and a little bit of water, and liquefy to obtain a thick sauce.

Add cooking oil to a large pan (or a cooking pot) and sauté the chopped garlic for one minute at medium heat. Then add the ground beef and the basil leaves. Season with salt and pepper and cook until brown. Pour the tomato sauce and let it boil. Add the cooked prickly pear strips and cook for a few more minutes. Check the flavor and adjust the salt and pepper as needed. You can also add some chicken broth keeping in mind that it contains salt.

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