Astrophytum

By Vladmir Andrenkov

Astrophytum comes from hot and dry regions of Mexico and the southern United States, grow on rocky limestone and sandy soils. The genus name is derived from the Greek words «aster» co-star and «phyton» -plant, indicating that the unusual appearance - if you look at the cactus from above, looks like a star with 3-10 "rays".

First Astrophytums were discovered and brought to Europe in the early 19th century and long time they were known as “bishop’s cap” because of the star like shape with five ribs.

The botanical history and science of Astrophytum started in 1827 when Thomas Coulter collected an unknown plant in the Mexican State of Hidalgo and sent it under the number 40 to Paris. In 1828, this specimen was described by De Candolle as Echinocactus ornatus. Already he mentioned a property of this plant, which makes the genus so unique within the cacti. It was white tufts of hair on the epidermis.

Pic. A.ornatum

After all, a few more species of Astrophytum were found in Mexico and Texas and the latest Astrophytum was discovered just recently by Manuel Nevárez on August 28th 2001 in Nuevo Leon, Mexico. He named it Digitostigma caput-medusae, which was moved to the genus Astrophytum by Dave Hunt in 2003.

Currently, genus Astrophytum includes six recognized species of cacti. However, because of the living in the populations divided by high mountain ridges and separated from each other by hundreds of Astrophytum free miles, plants from the same species growing in different populations, often have morphological differences, what leads to a number of subspecies or varieties.

If you look at the map, you will see that Astrophytums are growing in the mountainous areas of eastern Mexico and Southern United States and systematically are grouped into three sections or subgenus by the natural area of distribution and by the fruits shape and the way, the fruits are bursting.

Pic. Astrophytum groups' distribution

Curt Backeberg divided Astrophytum into two subgenus: Astrophytum and Neoastrophytum. However, according to the current situation, the three subgenus of Astrophytums are:

1. Astrophytum (or Austr-astrophytum or southern) - fruits splitting star like on the top:
   A.ornatum
   A.myriostigma
2. Neoastrophytum (or Septentri-astrophytum or northern) - fruits bursting at the base, longitudinal or not bursting:
   A. capricorne
   A. coahuilense
   A. asterias
3. Stigmato-dactylus (marked/doted fingers), introduced by Dave Hunt - fruits bursting irregular, longitudinal
   A.caput-medusae.

A. myriostigma and A. coahuilense are good illustration since their bodies are very alike, but they have distinct ways of fruits bursting. A. myriostigma fruit is bursting from top star like, but A. coahuilense fruit opens at the base. That is why these species are in different subgenus of Astrophytum.

Pic. Fruits bursting

The habitats of southern Astrophytum subgenus or southern group are on the Mexican plateau, 800-1800 m above the sea along the western border of the Sierra Madre Oriental. The northern Neoastrophytum is from the areas of lower altitude 700-1500 m above sea level and from the Gulf region and Texas with only 50-300 meters above the sea.

The location of A. caput-medusae in Nuevo León has been kept secret because of the very small population, which is endangered.

Pic. Astrophytum species distribution

You notice that two southern species has pure yellow flowers, but all northern Astrophytums have flowers with a red throat.

In most of the areas where Astrophytums are growing, soils are mainly built from limestone. At a few sites, like in Hidalgo and San Luis Potosí this soil is mixed with volcanic rocks. The southern populations are growing in the areas where the substrate in the root zone of plants consists mainly of mineral deposits mixed with a bit of humus substance. In the northern areas, we find more sandy proportions with clay and a little more humus.
Currently there are six recognized species of Astrophytum:

- A. asterias
- A. capricorne
- A. ornatum
- A. coahuilense
- A. capute-medusae
- A.myriostigma

Astrophytum ornatum
Discovered in 1828 from southern Mexican states Hidalgo, Queretaro, Guanajuato and the south of San Luis Potosi. Body of this plant is globose at first, later columnar, eventually 1 m toll and 20-30 cm in diameter. Scales are dense in young plants, forming curved stripes on the ribs. In the old age, scales are scattered or not present at all. Ribs 6-8. Spines 5-11, less than 3 cm, yellow or brown. Flowers 7 x 10 cm, pale to deep yellow. Fruits splitting apically (at the top).
• Wild specimens may apparently reach a height of 3 m!

Astrophytum myriostigma (1839)
A. myriostigma found by Lemaire and described in 1839. This plan is also from southern Mexico: Coahuila, Nuevo Leon, San Luis Potosi and Tamaulipas. The name means, “thousand dotted” what it is indeed.

Body globose or shortly columnar, up to 30cm toll and 10-20 cm in diameter. Scales usually dense, chalky white, but can be absent in 'Nudum' variety. Normally, there are 5 ribs, but some subspecies have 3 or 4 or could be even 10 in the “tulense” variety. Ribs are acute to rounded; no spines, except in seedlings; flowers 4-6 cm, entirely yellow and fragrant; fruits splitting also star like at on top.

Myriostigma has many varieties due to growing in many areas isolated from each other:

- columnare
- glabrum (nudum)
- potosinum (less specks)
- tulense (more specks)
- quadricostatum (4 ribs)
- strongylogonum (rounded ribs)
- nudum

Astrophytum asterias (1845)
A.asterias was found in 1845 by Zuccarini and described by Lemaire in 1868 as Echinocactus asterias.

Pic. A.asterias

This plant growing in Mexico (Nuevo Leon, Tamaulipas) and Texas USA.

Body of asterias is flatfish or hemispheric, 4-15 cm in diameter. Ribs 6-10, broad and low. No spines. Flowers 3 x 4—6.5 cm, yellow with orange or red throat, or tinged reddish overall. Fruits not bursting at all or splitting near base.

*The Texas plants are more globose than flatfish.

In habitat, asterias is growing much bigger than in collections and there is the evidence that 40 years old specimen found was 24 cm or almost 1 foot in diameter.

Many populations of asterias are located in the lower places or banks of Rio-Grande so sometime the plans are completely under the water for a short period. They are growing in a clay or relatively reach soils and therefore require more mild conditions in cultivations.

Astrophytum capricorne (1851)
Poselger found Astrophytum capricorne in 1851 and the plant was described by Dietrich later as Echinocactus capricornis. In 1922 Britton and Rose included this species into the genus Astrophytum.

Pic. A.caprocorne

Growing in Mexico: La Rinconada, Coahuila, Nuevo Leon, San Luis Potosi.

Capricorne means “goat horn formed spines”. And this species has the longest and the strongest spines among the genus. These spines play an important role in mimicry so in the brushwood they camouflage the plants completely.

Body of capricorne is globose or elongate, eventually columnar, to 25 cm toll and 15 cm in diameter, scales dense, light or can be absent in variety senile. Ribs 7-9, acute. Spines variable, from 1 to 20, up to 7cm or even more. Spines are flattened, curved and twisted, black-brown or lighter. Flowers 7 by 6-10(!) cm in diameter, yellow with red throat. Fruits not bursting or splitting near base.

There are many known varieties of A. capricorne such as:

- crassispinum (crassispinus = strong spines)
- minus (minus=little)
- niveum (snowily, snow-whitely)
- senile (senile = old)
- senile aureum (aureus=golden yellow spines) (show the plant)

Astrophytum coahuilense (1911)
The most controversial among. The discovery of these beautiful Astrophytums has to be owed to Dr. Carl Purpus who collected these plants in 1904 on his journeys through Coahuila in Mexico. He has mentioned that he had found the "white" form of Astrophytum myriostigma at the Cerro Bola and nearby Torreon with extreme thick flakes on the epidermis.

Pic. A.coahuilense

Body of coahuilense resembles A. myriostigma indeed. Flowers are large, sulphur-yellow with orange or scarlet-red throat. Fruits fleshy and what is important that fruits open from bottom.In general, coahuilense is slower growing than myriostigma and requires more sunlight in cultivation.

Astrophytum caput-medusae (2001)
The latest species of the genus Astrophytum is caput-medusae found by Velazco and Nevarez in August 2001 in Nuevo Leon, northern Mexico. Nevarez described new genus and species as Digitostigma caput-medusae. In 2003 Dave Hunt moved this new plant into the genus Astrophytum with which it shares unusual and significant features such as body covered by scales, hat-shaped seeds and very similar flowers.

Hunt has created new subgenus of Astrophytums – Stigmatodactylus, what means dotted fingers, with one species only.

Small population of this species (only 127) found and for an obvious reason the details are not published to protect the plant's habitat. What is known is that the range is located in flat terrain in the Mexican state of Nuevo Leon, at an altitude between 100 and 200 meters above sea level. The substrate is a bright desert ground (Xerosol) with very little organic components.

Body is geophytic (means has underground storage), with elongate short-lived tubercles from the rootstock. Tubercles cylindrical, very slender, up to19 cm long and 2-5 mm, in diameter, grey-green, covered with white flecks. Flowers 4 x 5 cm, yellow with red throat. Fruits ovoid (or egg-shaped), fleshy, irregularly dehiscent. A.caput-medusae has a mighty, fleshy central-root that can store water over a long time.

Hybrids

Because most Astrophytum are easy to hybridized, hybrids are very common in collections. In recent years a number of exciting hybrids grown in culture such as the appearance of the new cultivars 'Kabuto' and 'Onzuca', selected by Japanese breeders. The plants are really looking astonishing!

Cultivation

To grow an adult blooming Astrophytum is not a simple matter. They are slow growing and are sensitive to humidity. The easiest to culture are considered A. myriostigma and A.ornatum, which are from the southern or most genetically stable subgenus of Astrophytums. Another type A. asterias, which is one of the most beautiful and distinguish cactus, but at the same time the most difficult of Astrophytums to grow.

Although Astrophytums are not easy to care plants, there are a few basic rules to follow for a successful cultivation. The critical part of this rule is do not overwater your plants, but give them a lot of light and fresh air (true for most cacti plants). Only A. asterias might need a light screen from the full sun in summer time.

Soil:

The well-known fact is that in their native country Astrophytums grow in the areas with limestone formations. Therefore, they do not like acid soils in culture as well. The southern group, which includes Myriostigma and Ornatum like a sand, loam mineral substratum with pH 6.5-7 (neutral). Actually, you can add some humus into the soil for a better growth.

The northern group, which is A. asterias, A. coahuilense, A. caput-medusae and A. capricorne, requires even more mineral soil that drains easily and does not retain a lot of water. For example,

brick stone chippings mixed with sand will be good. May be only asterias will appreciate at least more clayish soil with some humus.

In general, Astrophytums do not like frequent repotting so large specimens should be repotted only every 5-7 years. In this case, the only source of nutrients will be watering your plants with a light fertilizer at least few times a season, but always give Astrophytums a smaller doze as for other cacti.

Watering:

Overwatering is main cause of losing Astrophytums. You should do it carefully even during the growing season. Usually, I give my plants a lot of water only 1-2 times a season in May-June by watering pots from the bottom, but I am always checking the forecast that there are at least of few hot days and warm nights ahead. The rest of the season, the watering of Astrophytums should be reasonably frequent, but always a bit less than other cacti.

Winter:

April till September is their vegetation time in our climate. Astrophytums spend the rest of the year completely dry at temperatures around 10 degrees Celsius. A. asterias likes more mild winter and summer conditions with the temperature 10-15 Celsius during winter period with some very careful watering even during the dormancy.

From Seeds:

Pic. Seedlings

Normally, Astrophytums do not have offspring so growing form seeds is the main methods of propagation. It is recommended to anybody who wants to try growing cacti from seeds. They have one of the biggest seeds, easily germinated in 24-48. As any young seedlings, they need some light, but not direct sun. Keep the substrate reasonably moist. Seedlings are growing fast, but can be easily lost if it is too cold and too much moisture.

References

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