

Sulcorebutia in habitat (by Johan Pot)

When Curt Backeberg in 1951 formulated the genus *Sulcorebutia*, he only knew plants in culture. He had done observations, which gave him the belief to deal with a closed group of cacti, differing in some characters from all other plants. The flower looks like one of *Rebutia*, but the roots and spination deviate. Moreover the tubercle has a short crack (“sulco”), from where the spines originate. This was seen as the main character.

Not everybody did agree with Backeberg. Martin Cárdenas for example rejected “*Sulcorebutia*” as a genus. He described some new species as *Rebutia*, *Aylostera* or even *Weingartia*, which were recombined some years later into *Sulcorebutia*, for example by Friedrich Ritter.

Ritter concluded, that the crack was no more than an imagination of Backeberg. The areole is very long and it continues in top of the tubercle in a wrinkle towards the body. Such character is observed in other genera as well, for example in *Weingartia*. Moreover Ritter claimed, that Werdermann had made an error, when he believed to deal with a *rebutia*. Similarity of the flower was only due to convergence. The shape of the scales on the flower distinct *Sulcorebutia* clearly from *Rebutia*.

There have been much confusion about the relationship of *Sulcorebutia*. Some professionals, like David Hunt, persist in their opinion, the plants have to be classified as *Rebutia*. However it is remarkable, that specialists in the field hardly make errors to distinct *sulcorebutias* from other genera, even without seeing a flower. Often they are not able to explain clearly, how they recognize the *sulcos*. Of course it will have to do with the knowledge, where they could expect to find these plants. But on the habitats one can find *Lobivias* and sometimes *Aylosteras* as well. Nevertheless little errors are made.

Meanwhile Dr. Ritz did investigation on chloroplast markers and found indeed a closed group of plants, consisting of *sulcorebutias* and *weingartias*.

Sulcorebutia is found in South Bolivia from Tarija to Independencia, more or less in the basins of Rio Grande and Rio Pilcomayo, in an altitude between 1200 m and 4000 m.

On the Cuesta de Sama *Sulcorebutia tarijensis* grows between 3200 and 3800 m. Plants have relatively little variation. This is uncommon in this genus. In many cases variability within a population is strong, not only in body and spination, but also in flower and seed. This makes it quite difficult to decide about relationships. That’s why I prefer to avoid the concepts “subspecies” and “variety”.

The Cuesta de Sama is often hidden by clouds. Therefore the area is rather humid and the *sulcorebutias* look fresh green. At the westside of the Samapass it is much dryer. From there no *sulcorebutias* were reported.

Many years *S. tarijensis* looked fully isolated from other populations. But recently *sulcorebutias* were found by Hansjörg Jucker in the area of Camargo and south of Azurduy. He explored the region of Nor and Sud Cinti, but did not do more discoveries. Obviously *sulcos* have not dispersed in that area, or they have died out.

From Azurduy to the north one can follow the Cordillera Mandinga, east of the Rio Pilcomayo. *S. azurduyensis* was discovered not far from Azurduy in an altitude of 2500 m, *S. cantargalloensis* in an altitude of 3600 on the Cerro Cantar Gallo.

Surprising was the discovery of Jucker in the same cordillera of sulcorebutias, which remind of weingartias. They were described as *Sulcorebutia juckeri*. Similar plants were found on the west side of Rio Pilcomayo, not far from Turuchipa. A close relationship of these plants to *Weingartia westii* is assumed.

North of the river plants are found, which are called mostly *Sulcorebutia tarabucoensis*. The type locality is not far from Tarabuco in an altitude of 3500 m. Around the village there are known many small populations, everyone with its own specific characters. Some of them were called *S. aureiflora*.

North of Presto dark red flowered sulcos are found: *S. pasopayana* (3100 m). Some experts take them as closely related to *S. tarabucoensis*.

Other such populations may be *S. rauschii* and *S. hertusii*, both from the area of Zudañez.

In most of the collections we will find plants called “*S. pulchra*”, for example plants with the label “HS 78”. They were found between Presto and Sucre. Recently Johan de Vries published, that these plants cannot be *S. pulchra*. A relationship with *S. canigueralii* is assumed, what is reported from east of Sucre (3000 m).

West of Sucre *S. vasqueziana* and *S. losenickyana* were found between 3000 m and 3900 m. Some of the populations in the area of Torotoro remind of these forms. One of them was described as *S. cuprea* (3000 m). Other similar plants are *S. taratensis* (Rio Caine, 3000 m), *S. verticillacantha* (north of Cerro Sayari, 3200-4000 m), *S. tunariensis* (road to Morochata, 3600 m) and a species from Sacani (3900 m).

Northwest of these populations yellow flowered sulcorebutias are found around Kami: *S. kamiensis* (3500-4000 m). These plants have certain similarities with *S. cuprea* and *S. verticillacantha*.

East of the Cordillera Mandinga were found populations called *S. crispata*. Even more to the east a sulcorebutia was discovered, which reminds to *S. crispata*, but accepted to be another species: *S. roberto-vasquezii* (1300 m).

Between Padilla and Pucara numerous populations are known, all called *S. crispata*, all of them with some particular outlook. Similar populations north of Zudañez got the name *S. gemmae* (2350-2700 m). More to the north *S. elizabethae* (2800 m) was found and at the other side of the Rio Grande, not far from Pasorapa *S. cardenasiana* (2600 m). There is a certain similarity of these plants to *S. aureiflora* and *S. canigueralii*.

North of Vallegrande *S. langeri* (2000) was reported. It looks rather isolated. But its spination reminds of *S. crispata*. Other such populations are known as *S. albissima* from the area of Aiquile (2400 m), but also *S. augustinii* from the road Omereque to Totora, 2600 m. Even *S. mizquensis* (Mizque 2600 m), some species of Tiraque (3100 m), *S. glomerispina* (Aguirre, 3200 m) and *S. krugerae* (Cochabamba, 2600 m) show a certain similarity. What to think of *S. arenacea* near Tiquipaya, 2200 m?

Sulcorebutia torotorensis was described as a weingartia, from the area of Torotoro in an altitude of 2000 m. Nowadays similar plants are found not far from the village in an altitude of 2950-3100 m. These plants show, like *S. juckeri*, a certain similarity to *Weingartia westii*. North of the Rio Caine was reported the yellow flowered *S. breviflora* (2400-2700 m). Not far from there, along the road to Acacio, the magenta flowered *S. gigantea* has been discovered. Around San Pedro de Buena Vista grow big sulcorebutias with red flowers (2900-3400 m), which are similar to plants of the area of Carasi. We know such plants also from Poroma and

Copa Willkhi, south of the Rio Caine/Rio Grande. The last population has been identified as *Weingartia neocumingii*. Even some populations called *S. frankiana* show similarity. North of the Rio, not far from the Mine Asientos, is the habitat of *S. purpurea* (2900-3000 m) and *S. jolantana* n.n. from Molinero (3000 m). Neighbour populations do not show only similarity with them, but also with *albissima*. *S. mentosa* however is not a very variable species, found around Aiquile (2300-2400 m). From here to the north-east *S. prantneri* (2900-3200 m) is found, *S. totorensis*, near Totorá at 2800 m and *S. tiraquensis* around Monte Punco at 2800-3100 m. Similar plants were discovered along the road to Santa Cruz: *S. lepida*, west of Pojo at 3000 m, *S. aguilari*, east of Pojo at 3000 m and *S. krahni*, Comarapa, 2000-2400 m. Remains an area with extreme variable plants, such as *S. polymorpha* along the road between Tiraque and Monte Punco in an altitude of 3200-3400 m, *S. hoffmannii* from Arani (3000-3100 m) and last but not least *S. steinbachii* from Colomi (3400 m). South of the latter many populations were discovered with different looking plants, which all are called “steinbachii”. It is assumed, that strong variability in such populations is caused by natural hybridization. Is it not striking, that exactly the type-plant of the genus came from such a population. Probably this is one reason, why it is that difficult to define the genus *Sulcorebutia*.

Originally published in *Terra seca* (France) 2011 N° 3 (p. 10 – 17)

Reproduced with permission of the author and publisher

This is the original English text written by Johan Pot and lately translated in French for publication in *Terra seca*.
