

NEW SULCOREBUTIAS FROM THE AYOPAYA REGION OF BOLIVIA

Willi Gertel tells us about some populations of *Sulcorebutia* found by the Swiss adventurer Hansjörg Jucker in the Rio Ayopaya region of Bolivia.

Translated by Graham Charles. Photographs by the author except where shown.

In the Ayopaya region one can find the northern-most populations of all sulcorebutias. Roughly speaking, it is almost exactly equidistant from La Paz and Cochabamba. The river system, which defines the province Ayopaya in the west is called the Rio Ayopaya, in its southern part the Rio Sacambaya, in the central part and further north the Rio Cotacajes. Another important river is the Rio Sta. Rosa, the most northerly part of which is called the Rio Negro and joins the Rio Sacambaya near to Cotacajes. The largest city is the provincial capital Independencia.

In this article I am not going to deal with the

well-known sulcorebutias from this area. There is already sufficient informative literature around. This article will serve to introduce some sulcorebutias that Hansjörg Jucker, the Swiss hiker with experience of Bolivia, has found during two walks in the surroundings of the estuary of the Rio Negro and Rio Sacambaya.

On his first walk through the Ayopaya region, he began by travelling in a truck from Independencia heading north towards Rio Sacambaya. Near the small town of Pocanche he found a path that led him onto a high mountain ridge heading directly north up to



Fig.1 Overlooking the junction of the Rio Sacambaya that comes into the picture from the right and leaves at the left bottom corner. The river joining it from the centre distance is the Rio Negro. (Photo: H. Jucker)



Fig.2 The barren landscape of the Laguna Pampa. (Photo: H. Jucker)

about 3300m by a small lake. The ridge runs practically parallel to and west of the Rio Negro. After he had reached the highest point, he arrived at the Laguna Pampa just below 3000m and then further down he came across *sulcorebutias* (HJ939). The case of this discovery shows that it is not sufficient to judge a population from the observations at the site.

Based on the observations at the site and with the collaboration of Johan de Vries (Fritz, G., Gertel, W. & de Vries, J. 2008), this field number was listed in the Compendium as *Sulcorebutia arenacea* (Card.) Ritter var. *menesesii* (Card.) Gertel & de Vries fa. which was still accepted in the 7th edition of 2010. After more observations, it was corrected in the *Sulcorebutia* book (Gertel, W. & Latin, W. 2010) to *Sulcorebutia arenacea* var. *kamiensis* (Bred. & Don.) Gertel & de Vries - but that was just as misleading. In his contribution to the “Kakteenforum” (Gertel 2012), HJ939 can be found as *Sulcorebutia arenacea* var. *candiae* (Card.) Gertel & de Vries. De Vries (2013)

agrees with this view, although he uses a rather polemical tone in his article towards the earlier authors. But in principle he is right. It makes more sense for newly discovered plants only to be referred to as *Sulcorebutia* spec. and to quote the corresponding field number. He was also right that var. *candiae* comes from an altitude of 2800m (Jucker already designated HJ939 in his travel journal from 2002 as *S. candiae*). To add further to the confusion with *Sulcorebutia arenacea* var. *kamiensis*, it is interesting that in this population the plants usually flower more or less orange, a colour which was so far known only from a few var. *kamiensis* clones.

During his further descent to Rio Sacambaya, Jucker found yet another *sulcorebutia* population at 1550m altitude, barely 100m above the river (HJ940). These plants were much denser-spined than HJ939 and there was never really any doubt that this was *Sulcorebutia arenacea* var. *menesesii*. This is also the specified altitude in the first description by Cárdenas (the altitude of Augustin and



Fig.3 *Sulcorebutia arenacea* var. *candiae* HJ939 at the site
(Photo: H. Jucker)



Fig.5 A particularly nice spined *Sulcorebutia arenacea* var. *candiae* HJ939



Fig.7 *Sulcorebutia arenacea* var. *menesesii* HJ940 / Ge5 with interlacing spines



Fig.4 *Sulcorebutia arenacea* var. *candiae* HJ939 / Ge3 with orange flower



Fig.6 *Sulcorebutia arenacea* var. *menesesii* HJ940 in habitat
(Photo: H. Jucker)



Fig.8 A particularly fine specimen of *Sulcorebutia arenacea* var. *menesesii* HJ940 in the Jucker collection (Photo: H. Jucker)

Swoboda for HS210 as 1200m was always doubted). However, the Jucker discovery is not the same form as that which was used by Cárdenas for his original description, but probably the one that Ritter had once found in this area (FR775). Jucker found *Sulcorebutia arenacea* var. *menesesii* also on his way further along the Rio Sacambaya up to altitudes of about 1350m.

The continuation of this trip was quite dramatic for Hansjörg Jucker, not to say traumatic. He was running towards the south on the northeastern bank of the Rio Negro. Between the small towns of Aguada and Pucarani he was captured by locals and, like a goat, driven into the village and detained there without water and without access to a toilet for 16 hours. Some of his belongings were taken from him and the next day they drove him



Fig.9 *Sulcorebutia arenacea* var. *candiae* HJ941 from the heights towards Sta. Rosa



Fig.10 Very strong spined plant of *Sulcorebutia arenacea* var. *candiae* HJ942



Fig.11 *Sulcorebutia arenacea* var. *candiae* HJ942 / Ge5 from the mountainside overlooking the Rio Sta. Rosa



Fig.12 *Sulcorebutia arenacea* var. *densispina* HJ1289 in habitat (Photo: H. Jucker)



Fig.13 Plant of *Sulcorebutia arenacea* var. *densispina* HJ1289 covered by curved bicoloured spines (Photo: H. Jucker)



Fig.14 *Sulcorebutia arenacea* var. *densispina* HJ1289. Habitat plant with yellow spines in the crown (Photo: H. Jucker)

towards the valley of the Rio Sta. Rosa. It shows the incredible audacity of the wanderer that he was a few hundred metres below the village, when he saw sulcorebutias and stopped at the plants (HJ941, HJ942) to photograph and study them in detail. They turned out to be the largest *Sulcorebutia arenacea* var. *candiae* (HJ942) that I know. They have beautiful long and thick, yellow, partially protruding spines that makes them stand out

clearly from a group of *S. candiae*.

Only eight years later, in 2010, Hansjörg Jucker returned to the Ayopaya area. He had set out north of the Rio Sacambaya to explore the ridge. This is practically a continuation of his path from 2002 to the localities of HJ939 and HJ940. The northern mountain range is, however, up to almost 4500m high and obviously very dry and arid. Sulcorebutias



Fig.15 *Sulcorebutia arenacea* var. *densispina* HJ1289 with dense spination that gives the plant its name (Photo: H. Jucker)



Fig.17 A very showy *Sulcorebutia arenacea* var. *densispina* HJ1289 with reddish brown pectinate spines (Photo: H. Jucker)



Fig.19 Large, black spined plant of *Sulcorebutia* spec. / var. nov. HJ1290a (Photo: H. Jucker)

were unfortunately nowhere to be found there, so Jucker decided to descend to the east in the direction of Cotacajes. Near Cotacajes are supposed to be the type locations of *Rebutia* (*Sulcorebutia*) *menesesii* and *R. (S.) glomeriseta*, however, because of the lack of information, he did not find them. In the following days Jucker decided to run to the Rio Negro. Along the way, he found a *sulcorebutia* population (HJ1289), which is perhaps the most beautiful



Fig.16 *Sulcorebutia arenacea* var. *densispina* HJ1289 with dense whitish spines (Photo: H. Jucker)



Fig.18 Light yellow spined *Sulcorebutia arenacea* var *densispina* HJ1289 / Ge1. Similar to plants also found by Ritter



Fig.20 *Sulcorebutia arenacea* fa. HJ1290. Jucker found this light and close spined form in the immediate vicinity of HJ1290a (Photo: H. Jucker)

that was ever found in the Ayopaya region. John Carr (2014), who was travelling in 2013 with Johan de Vries, also reported recently on this locality. There is little doubt that these plants belong to the key species of this region, *Sulcorebutia arenacea*, but they differ so much from that and also from the other varieties in



Fig.21 *Sulcorebutia* spec. / var. nov. HJ1290a / Ge1 - a four year old seedling with an orange flower



Fig.22 *Sulcorebutia* spec. / var. nov. HJ1290a / Ge3 with brown spines and a yellow flower



Fig.23 *Sulcorebutia* spec. / var. nov. HJ1290a / Ge5 with a very large bright yellow flower



Fig.24 *Sulcorebutia arenacea* fa. HJ1290 / Ge1 shows an upwardly curved central spine on some of the lower areoles - very unusual for *S. arenacea* relatives.

the wider area, that we are of the opinion that they should carry a name at the rank of variety. The first description was recently published in *Succulenta* 94(1): 34–44 (2015):

***Sulcorebutia arenacea* (Card.) Ritter var. *densispina* Gertel & Jucker**

Differs from *Sulcorebutia arenacea* (Card.) Ritter var. *arenacea* by its much longer, very dense spination. The colour of the spines varies from almost white to yellow, brownish and reddish. Flowers and seeds are more or less like the species.

Type. Bolivia, Dept. La Paz, Prov. Inquisivi, Cotacajes - Rio Negro, 2380m – HJ1289

He arrived at the Rio Negro and wandered around the upper reaches of the river until he found a suitable place to get out of this river bed. No sooner had he started to climb the extremely steep gravel slope at 1500m altitude, that he again found *sulcorebutias* which at first glance did not look particularly sensational. Since the incline was extremely steep and

difficult, he could not do a particularly intensive search. Only 4 or 5 plants that were nearby could be photographed. Some of the plants were strongly reminiscent of *Sulcorebutia arenacea* var. *arenacea* (HJ1290) but others were significantly different (HJ1290a). Their plant bodies were dark green to almost black, and also the rather loose spines were black later becoming grey. All this was only realized later by studying the photographs. About one of the observed *sulcos* [Fig.20] we cannot say anything about the body colour, because of the dense spines, it cannot be seen. On the other hand, this is the plant you would most likely say that it has a certain similarity to *Sulcorebutia arenacea* v. *arenacea*.

So we have here again a problem, as reported above. From the site observations, one can only say a limited amount about the actual appearance of the plants. We had at first already planned to describe HJ1290a also as a new variety of *Sulcorebutia arenacea*, but that



Fig.25 *Sulcorebutia arenacea* fa. HJ1290 with uniform pectinate spines and an orange flower



Fig.26 *Sulcorebutia arenacea* fa. HJ1291 / Ge2 - a form that you might like to call *S. candiae*



Fig.27 *Sulcorebutia arenacea* fa. HJ1291 - with clawshaped spines and a gorgeous golden yellow flower



Fig.28 *Sulcorebutia arenacea* var. *candiae* HJ1292 / Ge5
Notice how the orange colour changes with the age of the flower to yellow.



Fig.29 *Sulcorebutia arenacea* var. *candiae* HJ1292 / Ge3 from the shores of the Laguna Pampa

will be postponed until some time in the future when more research has been done at this site. The question is: Are there two completely different plants at this location, or possibly a hybrid swarm? This we are not able to decide at the moment. We also cannot say with complete certainty if all the plants in question have been seen more or less at the same altitude or rather in the course of the climb. What seems certain now is that Jucker has discovered a great *sulcorebutia* population, by which we see exciting new plants for our collections.

Upon further exploration of this mountainside Jucker found at a certain altitude again rather familiar *sulcorebutias*. HJ1291 and more so HJ1292 are very similar to the HJ939 found earlier. HJ1291 still has partly relatively short spines and they are quite similar to HJ1290 found 1000m lower. The spines of HJ1292 are longer and indistinguishable from HJ939. No surprise that, since the last two localities are

only a little more than 1 km apart. These findings naturally give rise to the suspicion that we see here an altitude-dependent development line that starts almost at the riverside with short-spined forms similar to *Sulcorebutia arenacea* changing continuously into longer spined ones higher up. On the other hand, this also means that the dark types (HJ1290a) do not fit into this line. How we

should evaluate the systematic and taxonomic consequences remains open.

By the discoveries of these two trips, we have a fairly comprehensive picture of this small section of the Ayopaya region – the mouth of Rio Negro - Rio Sacambaya. We were able to describe a new variety but still have some unanswered questions. These sulcorebutias will therefore be discussed again at a later date.

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