Sulcorebutia tarabucoensis ssp. patriciae – a spectacular new sulcorebutia

Johan de Vries and Willi Gertel

New information and clear illustrations of this interesting new subspecies are presented, together with some discussion on the status of other taxa recently described by Halda et al.

When we first heard about this sulcorebutia, and a little later saw pictures of it, it was immediately clear that this must be something new.

Several people, including Ralf Hillmann and Leo van der Hoeven, visited the place where this plant grows, accompanied by Brian Bates, who first discovered it a few years ago. It is located in Bolivia, in Department Chuquisaca, Zudañez Province, east of Presto, at an altitude of 2500 to 2600m. Ralf reported that the road to the site was very poor and ended abruptly shortly after finding the habitat. Leo also told us that it was almost impossible to travel this road, but in spite of the poor conditions they were able to reach the locality.

Fig. 1 ***Sulcorebutia tarabucoensis*** **ssp.** ***patriciae*** **(Dept. Chuquisaca, Prov. Zudañez, Duraznillo, type locality) after three years in cultivation (Photo: Johan de Vries)**

Fig. 2: ***Sulcorebutia tarabucoensis*** **ssp.** ***patriciae*** **in habitat (Photo: Willi Gertel)**

Fig. 3 ***Sulcorebutia tarabucoensis*** **ssp.** ***patriciae*** **in habitat (Photo: Willi Gertel)**

Fig. 4 ***Sulcorebutia tarabucoensis*** **ssp.** ***hertusii*** **G340 in habitat (Photo Willi Gertel)**

Fig. 5 ***Sulcorebutia tarabucoensis*** **ssp.** ***hertusii*** **JD330-7 (Zudañez – Tomina, km.3, 2800m) in cultivation. One of the original plants found by Rovida (Photo: Willi Gertel)**

Fig. 6 ***Sulcorebutia tarabucoensis*** **ssp.** ***hertusii*** **G340 in habitat (Photo: Willi Gertel)**

Fig. 7 ***Sulcorebutia*** **sp. G343. An unnamed species growing on top of the same hill as** ***Sulcorebutia tarabucoensis*** **ssp.** ***hertusii*** **G340 (Photo: Willi Gertel)**

A few plants from the type locality have now come into our collections. The lovely yellow, hair-like spines that cover this plant are the first striking detail to be noticed. It is the main feature that makes these sulcorebutias so very attractive. Because Brian Bates often guides travellers, he offered to let the Czech cactophile group led by Josef Halda describe this new discovery.
The validating description of *Sulcorebutia tarabucoensis* ssp. *patriciae* (Figs. 1-3) was published by Bates, Halda, Hertus and Horácek in 2003, and it was named after Brian Bates's Bolivian wife Patricia.

In the meantime plants in our collection have grown to maturity, and quite conspicuously none of them has developed any offsets. We were able to cross-pollinate their nice magenta flowers, which subsequently set seeds. Unfortunately none of the seeds have germinated so there are no propagations available yet. We are hoping for better success this year.

It is interesting to compare *S. tarabucoensis* ssp. *patriciae* with *S. tarabucoensis* ssp. *hertusii* (Figs. 4-6). Subspecies *hertusii* (Halda et Horácek) Gertel et Wahl was described by Halda and Horácek in 2001 first as a subspecies of *S. crispata* Rausch, and was transferred one year later by the same authors to species rank, and most recently named *S. tarabucoensis* ssp. *hertusii* by Gertel and Wahl in 2004. These plants first came to our attention years ago under the provisional name *S. senilis* as listed by Knize, and were later described as *S. gerosenilis* by Ríha and Arandia in 2001. They claimed that Halda and Horácek did not deposit any holotype material of *hertusii*, but this has never been proven. As a matter of fact, Arandia, who travelled with Rovida at that time was the first one to distribute this new find. He gave plant material to Knize (**KK2005**), and to John Donald (**JD330**, Fig. 5), from whom propagations reached our collections. Original material from Rovida (**GR21**) was available only some years later. The place where Arandia and Rovida collected *S. tarabucoensis* ssp. *hertusii* is located a few kilometres south of Zudañez. A distance of about 30km separates the locations of ssp. *hertusii* and ssp. *patriciae* and, except for *S. rauschii* Frank and one other sulcorebutia from the northern part of Cerro Ayrampo, no other sulcorebutias are reported from this area. Therefore we have no indication of any spatial connection between the two subspecies. Without a doubt the biggest difference between the two is the mainly solitary growth of ssp. *patriciae* and the clustering habit of ssp. *hertusii*. Also the root systems differ: while ssp. *patriciae* develops a strong single taproot, ssp. *hertusii*, mainly due to its

Fig. 8 *Sulcorebutia* sp. G343. An unnamed species growing on top of the same hill as *Sulcorebutia tarabucoensis* ssp. *hertusii* G340 (Photo: Willi Gertel)

Fig. 9 *Sulcorebutia sp.* G347. A similar plant to G343 (see Figs. 7 & 8), but in this case occurring close to *Sulcorebutia tarabucoensis* ssp. *patriciae* (Photo: Willi Gertel)

Fig. 10 An intermediate between sp. G347 (see Fig. 9) and *Sulcorebutia tarabucoensis* ssp. *patriciae* (Photo: Willi Gertel)

Fig. 11 Another intermediate between sp. G347 (see Fig. 9) and *Sulcorebutia tarabucoensis* ssp. *patriciae* (Photo: Willi Gertel)

Fig. 12 *Sulcorebutia pasopayana* G353 in habitat. (Possibly the same as *S. pulchra* ssp. *lenkae*) (Photo: Willi Gertel)

Fig. 13 *Sulcorebutia pasopayana* G353 in habitat. (Possibly the same as *S. pulchra* ssp. *lenkae*) (Photo: Willi Gertel)

clustering growth, has many small fleshy roots. Both subspecies have magenta flowers, but the anthers of ssp. *patriciae* are yellowish or light magenta while those of ssp. *hertusii* are dark violet, typical for the sulcorebutias from around Zudañez. The seeds of both subspecies are more or less identical. Compared with the seeds of *S. pasopayana* (Brandt) Gertel they are slightly smaller, and the diameter of the hilum-micropylarregion (HMR) is smaller than the seed diameter, while that of *S. pasopayana* is wider and more strongly curved. Also the ecology of the habitats is very different: while ssp. *patriciae* often grows in moss and partly underneath shrubs and bushes, ssp. *hertusii* is found in crevices of rocks with little accompanying vegetation.

It is interesting to note that close to both subspecies, other sulcorebutias have been found that look very much alike in both habitats. In the case of *S. tarabucoensis* ssp. *hertusii* these forms even grow on the same hill only a few hundred metres higher (Figs. 7-8). Close to ssp. *patriciae* similar plants are found on nearby hills (Fig. 9). In both places also intermediate forms could be detected (Figs. 10-11).

No doubt both subspecies are closely related, and from what we know today, it seems reasonable to keep them as subspecies of *S. tarabucoensis*. We are also certain that they are not the same plants, and therefore two separate taxa are justified.

Finally, we wish to say a few words about some of the other taxa described by Halda et al. *S. pulchra* (Card.) Donald ssp. *lenkae* Halda, Hertus et Horácek, which has been found alongside the same road as *S. tarabucoensis* ssp. *patriciae* is not a good new taxon, but it is the well known *S. pasopayana* (Figs. 12-13). Both authors of this article have visited all these locations and have studied the populations very closely. We have found several different forms of sulcorebutias, mostly growing at altitudes between 2500 and 2700m, as does *S. tarabucoensis* ssp. *patriciae*. Only the site of the most western population lies above 3000m and these plants are exactly like those to be found north of Presto – *S. pasopayana*! Therefore this taxon is to be considered a synonym of the latter species.

The second 'new' taxon we would like to discuss here briefly is *S. christiei* Bates, Halda, Hertus et Horácek. The plants from the area between Ravelo and Ocurí are very well known (**JK204-JK206** and **VZ206**) (Figs. 14-15). At first we were quite surprised to see the strong spination occasionally found among plants of those populations. Studies over many years and the raising of hundreds of seedlings, however, showed

Fig. 14 *Sulcorebutia vasqueziana* ssp. *losenickyana* VZ 206-1 (Dept. Potosí, Prov. Chayanta, pass 9.6km from Ocuri, 3740m) (= *S. christiei* Halda et al.) (Photo: Johan de Vries)

Fig. 15 *Sulcorebutia vasqueziana* ssp. *losenickyana* VZ 206-2 (Dept. Potosí, Prov. Chayanta, pass 9.6km from Ocuri, 3740m), growing with those illustrated in Fig. 14, but with violet flowers (Photo: Johan de Vries)

Fig. 16 *Sulcorebutia vasqueziana* ssp. *losenickyana* HS76 (Chuquisaca, Prov. Oropeza, nr. Atocani, 3100m) = *Sulcorebutia pedroensis* Swoboda *nom. nud. (*Photo: Willi Gertel)

that they are nothing but extreme forms of *S. vasqueziana* ssp. *losenickyana* (Rausch) Gertel et Šida. Therefore we declare *S. christiei* – sorry Bill Christie – to be a synonym of the latter, well known taxon.

The third taxon we would like to comment on is *S. vasqueziana* Rausch ssp. *pedroensis* Bates, Halda, Hertus et Horácek. We have never seen these plants, but we know the populations from the area around Mizque Pampa. In this area different forms of *S. santiaginiensis* Rausch can be found, or sulcorebutias that in one way or another could be related to *S. mentosa* Ritter. We are completely convinced that in this place there grows nothing in any way related to *S. vasqueziana* or its subspecies *alba*. *Sulcorebutia pedroensis* was a provisional name once used by Swoboda for a white spined form of *S. vasqueziana* ssp. *losenickyana* (**HS76** and **76a**) that he found close to Atocani on the road between Alamos and Ravelo, but this is nowhere near Mizque Pampa or Puca Loma (Fig. 16).

Other 'new' names published by the same Czech group have been (for *S. confusa*, see Gertel 2004), or will be, discussed elsewhere. Parts of the above article have already been published in the journal *Echinopseen* by Johan de Vries (2005).

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Johan de Vries, Prinsenweg 5, NL-3237 LN Vierpolders, Netherlands. Email: vriezom.sulcoreb@planet.nl

Willi Gertel, Rheinstr. 46, D-55218 Ingelheim, Germany. Email: willi.gertel@t-online.de

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