

# New Bolivian Cacti

By M. Cardenas

Part VIII-D

## **Rebutia tunariensis** Cárđ. nov. sp.

Caespitosa complanata. Radicibus valde profundis 8-15 cm long. Caulis obscure viridibus 0,5 cm altis 1-1,8 cm crassis. Costis plusminusve 10 in tubercula securiformia 3 mm alta solutis. Areolis 3-4 mm inter se distantibus anguste ellipticis 3-4 mm long, cinereo tomentosis. Aculeis pectinatis 10-12, setiformibus compressis vel parce erectis 3-5 mm long, apice albo hyalinis, basim brunescens. Flores pleurogeni infundibuliformes 3 cm long, parce curvati supra ovario. Ovario albido 5 mm long, squamis 2-3 mm latis albis praedito. Tubus angustus superne patens roseo purpureus, squamis 3 mm latis albidis mucronatis instructus. Phyllis perigoni exterioribus spatulatis 12 mm long, aurantiaco purpureis ad basim flavis. Phyllis interioribus lanceolatis mucronatis 11 mm long, obscure rubeis ad basim aureis. Staminibus ex 6 mm supra fundum tubi usque ad basim petalorum 6-10 mm long. Filamentibus aureis; antheris flavis. Stylo 2 cm long, tenue, inferne albo, superne viridiscenti non stamina superanti, 5 lobis stigmaticis 1,5 mm long, flavis coronato.

Patria: Bolivia. Provincia Cercado. Departamento Cochabamba, prope Monte Tunari, 3.200 m.

Caespitose rather buried in grassy stony mountain slopes. Roots deep 8-15 cm long. Stem dark green 0,5 cm high, 1-1,8 cm thick. Ribs about 10 broken in hatchet shaped 4 mm long and 3 mm high tubercles.

Areoles 3-4 mm apart narrowly elliptic, 3-4 mm long, gray felted. Spines pectinate 10-12 in two rows, bristle like, appressed, white hyaline at tips, brownish at base. Some young stems with erect spines. All spines 3-5 mm long. Flowers from the base of stems, funnellform 3 cm long, 2,5 cm limb, curved above ovary. Ovary whitish 5 mm long with 2-3 mm broad whitish scales. Tube narrow, widening above pink purplish with 3 mm broad mucronate whitish scales. Outer perianth segments spatulate 12 x 3 mm orange purple, yellowish at base. Inner segments lanceolate mucronate 11 x 3 mm dark red, golden yellow at base. Stamens from 6 mm above the bottom of tube to the base of petals, 6-10 mm long; filaments golden yellow, anthers yellow. Style 2 cm long, thin, white at base, greenish above. Stigma rays 5, yellow 1,5 mm long not surpassing stamens.

Bolivia. Province of Cercado. Department of Cochabamba. Mount Tunari, 3.200 m. December 1962.

M. Cárđenas No. 5555 (Type in Herbarium Cardenasianum. Cotype in the U.S. National Herbarium).

**Obs. This species at a glance might remind *R. cañigueralii*. It differs however by its**

**hatchet shaped tubercles and its very narrow flower tube where the stamens arise not at its bottom but higher.**

**According to Spegazzini, Backeberg and Donald, this species should be included in the Genus *Aylostera*.**

**We have agreed with this judgment too and described some years ago *Aylostera kruegeri* from Mount Tunari. Now after we have revised again the original description of Dr. Spegazzini's *Aylostera* nov. gen. in "Breves Notas Cactológicas", Buenos Aires, 1923 and looking at the flower dissections of several *Rebutinae* from Bolivia, we consider the distinguishing character proposed to establish that genus as inconsistent.**

**Spegazzini stated: "tubo elongato angusto solido cum stylo concreto." This means that the style in *Aylostera* is attached to the tube. In *Aylostera pseudominuscula*, *A. deminuta*, *A. spinossimi*, etc., the tube it is really very slender in almost all its length. Even in this case, the style is not attached to the tube wall. On the other hand there are flower tubes intermediate in slenderness and length between typical tubes for *Aylostera* and *Rebutia*. To avoid more confusion introduced by the genera and species splitters, we consider it wise to go back to Schumann's definition of the genus *Rebutia* as including plants simple or caespitose with ribs broken into tubercles, spines of bristle type and wide funnellform flowers with scales on ovary and tube not bearing hairs. Thus we should include in the Genus *Rebutia*, the genera**

*Aylostera* and *Sulcorebutia*. Backeberg has created in 1951 the Genus *Sulcorebutia* based on the Bolivian species *Rebutia steinbachii* proposing as differential characters, the stem tubercles hatched-shaped and provided with a furrow from which the wolly areole arises. What is really outstanding in *Rebutia steinbachii*, is the type which are 3-5 cm long and subulate whilst in the common *Rebutia* species, these are of the bristle type. But we have observed

at the type locality of this species, plants with stem heads arising from the same rootstock some with bristle-like spines and some with subulate, long ones. There is a tremendous polymorphism among these plants with regard to spines and color of flowers. But the flowers of *Sulcorebutia* are not different from those coming from other *Rebutia*. They are funnellform and bear broad scales without hairs.

### **Rebutia glomerispina Cárdenas. nov. sp.**

Caespitosa complanata. Radicibus napiformibus. Cormus 5 mm altus, 3-5 mm latus. Costis plusminusve 20, tuberculatis 2-3 mm altis, 4 mm latis glaucis. Areolis 3 mm remotis, ellipticis 3 mm long, cinereo tomentosus. Aculeis 10-14 radianthibus lateraliter intricatis, cormum obtengentibus 5-20 mm long, tenuibus acicularibus, albis vel aurantiaceis ad basim incrassatis. Floribus ex margine superiore caulorum 28 mm long. Ovario globoso 4 mm diam. inferne albo, squamis 1,5-2 mm latis smaragdo viridibus oblecto. Tubo 6 mm long, squamis 2 mm latis viridibus praedito. Phyllis perigoni exterioribus spathulatis 12 mm long, obscure magentibus. Phyllis interioribus spathulatis 14 mm long, magentibus. Staminiibus ex fundo tubi usque ad basim petali 3-4 mm long.; filamentibus magentibus, antheris flavis. Stylo 14 mm long, albis stamina superantibus, 6 radiis stigmaticis albis 2 mm long, coronato.  
Patria: Bolivia. Provincia Chapare. Departamento Cochabamba, prope Huakanki, 3.200m.

Caespitose flattened like *Neowerdermannia* with turnip-like roots. Stems 5 mm high, 3-5 mm broad. Ribs about 20 fully tubercled 2-3 mm high, 4 mm wide, glaucous. Areoles 3 mm apart elliptic, gray felted 3 mm long. Spines 10-14 laterallu spreading, fully intermingled and hidden the whole stem 5-20 mm long, acicular and swollen at base. The spines of the stem borders, white, those of the center, orange-brown. Flowers from near the edges of the flattened heads 28 mm long, 20 mm limb. Ovary globose 4 mm diam. white at base entirely covered by 1,5-2 mm broad emerald green leaf-like scales. Tube 5-6 mm long with 2 mm broad, green yellowish at base scales. Outer perianth segments spathulate 12 x 4 mm deep magenta inside, lighter outside. inner segments spathulate 14 x 4 mm, magenta. Stamens from bottom of tube to the base of petals 3-4 mm long; filaments magenta, anthers yellow. Style 14 mm long, white, much surpassing stamens. Stigma lobes 6, white 2 mm long.

Bolivia. Province of Chapare. Department of Cochabamba. Huakanki. December 1961. M. Cárdenas No. 5556 (Type in Herbarium Cardenasianum. Cotype in the U.S. National Herbarium).

**Obs. This species is characterized by its flattened habit and its intermingled spines which make impossible to count them unless areole dissection should be made.**

**As Backeberg states in this "Die Cactaceae." Band III, the number of *Rebutia* species had increased a lot and the new discovered species show puzzling characters. However, as we have stated above, the flower morphology remains the same. The stem is much variable even within the same species. We know *R. steinbachii* with plants of only 2 cm diameter heads and bristle-like spines and plants measuring 10 cm in diameter or more with subulate 4-5 cm long spines, both however bearing the same type of flowers. We have seen plants of *R. tiraquensis* with light green or yellow spines or dark red-brown ones growing together in the wild. The colors of flowers in the two above mentioned species are red, magenta, orange and so on. It seems that the Genus *Rebutia* should spread out from the center of Bolivia where is located the Department of Cochabamba. The yellow flowered species: *R. arenacea*, *R. glomeriseta*, *R. candiae* and *R. menesesii*, come from the other side of Mount Tunari**

which faces Cochabamba City by the north. All the long subulate spined species: *R. steinbachii*, *R. totoensis*, *R. tiraquensis* and *R. glomerispina* belong to the Cordillera de Cochabamba extending through the Provinces of Chapare and Carrasco. The reddish flowered species *Sulcorebutia lepida* Ritter (Nat. & Succ. Journ. March 1962) from Province of Carrasco seems close to *R. totoensis* from almost the same area. The other species described by Mr. Ritter as *Sulcorebutia verticillacantha* comes from the Province of Arque at the S.W. of Cochabamba. With the exception of *R. tunariensis* with orange-red flowers, all the other *Rebutia* from North of Cochabamba, bear yellow flowers. Britton and Rose included under *Rebutia* the Rebutiod cacti bearing hairs at the ovary and tube like the actual *Mediolobivia pectinata* var. *neosteimannii* Bckbg. Even if morphologically there is a difference between hairy and naked ovary and tube in these plants, on the other hand there is a physiological resemblance in their blooming behavior. In both groups of plants flowers open for two or three days while in *Lobivia* species it does only for one day. Up to now, we have collected in Bolivia, the following species of Rebutinae: *Rebutia fiebrigii* Gürke from Tarija, *R. spinosissima* Bckbg. from Chuquisaca, *R. arenacea* Cárd. from Ayopaya, *R. glomeriseta* Cárd. from Ayopaya, *R. tiraquensis* Cárd. from near Tiraque

(Cochabamba), *R. totoensis* Cárd. from near Totorá, *R. kruegeri* from Mount Tunari, *R. steinbachii* Werd. from Colomi (Chapare), *R. candiae* Cárd. from Ayopaya, *R. menesesii* Cárd. from Ayopaya, *R. taratensis* Cárd. from near Tarata, *R. cañiguerallii* Cárd. from Sucre, *R. tunariensis* Cárd. from Mount Tunari and *R. glomerispina* Cárd. from Chapare. To this list we must add the two species described by Mr. Ritter for the Department of Cochabamba as follows: *Rebutia lepida* (Ritter) Cárd. nov. comb. from near Totorá and *Rebutia verticillacantha* (Ritter) Cárd. nov. comb. from Arque.

We have a plant from Narvaez (Tarija) which seems to be *Rebutia kupperiana* Böd. This should be included in *Pygmaelobivia* group because of its hairy ovary-tube character. Neither should be included *Mediolobivia pectinata* v. *orurensis* Bckbg. by the same reason. We have not seen two other related species mentioned for Bolivia: *Mediolobivia eucaliptana* (bckbg.) Krainz and *M. ritteri* (Wess.) Krainz. *Rebutia krainziana* Kessler seems very similar to *R. arenacea* Cárd. It was collected by Mr. Ritter in Bolivia years ago but its locality was not mentioned. Thus we have not found it in the wild.

We hope that the future work of long resident botanists in Bolivia and Argentina would clear up the present state of the taxonomy of Rebutinae which is unfortunately very controversial and still confused.