

## ***Cintia* – *Sulcorebutia* – *Weingartia*: Spiny morphology and thorny genetics**

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The genera *Cintia* Kníze & Ríha, *Sulcorebutia* Backeb. and *Weingartia* Werderm. from high elevations of the Central Andes fascinate cactus breeders because of their enormous morphological diversity, especially in flower colour varying even within populations. Phylogenetic analyses based on chloroplast DNA sequences and an AFLP study demonstrated that these genera form a well-supported monophyletic group that is sister to *Rebutia* s.s., but do neither support the split between the genera *Sulcorebutia* and *Weingartia*, nor the current taxonomy. Species composition of the clades “*steinbachii*”, “*verticillacantha*” and “*tarijenis*” were largely congruent between chloroplast and AFLP data and are distributed in the north western, northern and southern part of the distribution area, respectively. The clades “*canigueralii*” and “*mentosa*” were well-supported by the chloroplast phylogeny but their taxa were assigned to different clusters by a Bayesian clustering approach based on the AFLP data set. These incongruent clades are distributed in the central area of the range at moderate elevations of 2000–3000 m. These data support the hypothesis that taxa of the “*steinbachii*”, “*verticillacantha*” and “*tarijenis*” clade from the edges of the distribution area may have evolved by recent colonization events after the last glaciations period, whereas the great genetic diversity within the “*canigueralii*” and “*mentosa*” may be maintained by ongoing hybridization.

This study has been initiated and financially supported by the Studiengemeinschaft Südamerikanische Kakteen e. V. (SSK). <http://www.ssk-kaktus.org>