



# Stellungnahme von Stig Dalström zu "Odontoglossum oder Oncidium?"

(M.E.)

## Vorbemerkung der Redaktion

In unserer Oktoberausgabe "Die Orchidee" 73(5), 2022, S. 394 – 399, veröffentlichten wir (in Übersetzung) unter dem Titel "Odontoglossum oder Oncidium" eine in der September-Ausgabe von "The Orchid Review" erschienene Publikation mit einer Einführung des OHRAG-Vorsitzenden Johan Hermans und den Ausführungen von Mark Chase zu der Entscheidung der Hybrid Registration Advisory Group (OHRAG) der Royal Horticultural Society (RHS), Kew, die Überführung der meisten *Odontoglossum*-Arten in die Gattung *Oncidium* beizubehalten und damit den von den Autoren von "The Odontoglossum Story", Stig Dalström, Wesley E. Higgins und Guido Deburghgraeve, bei der RHS eingereichten Vorschlag abzulehnen. Hierzu erreichte uns am 15.11.2022 ein "Letter to the Editors" von Stig Dalström mit seiner Stellungnahme zu den Ausführungen von Mark Chase, die wir unseren Lesern im Original nachfolgend zur Kenntnis geben.

## A letter to the Editors of AOS "Orchids", D.O.G. "Die Orchidee", and "The Orchid Review", concerning a response to the article Notes on Names (2022).

Dear Editors,

In an article published in AOS Orchids 92(9), Die Orchidee 73(5), and The Orchid Review (Sep. 2022), the Royal Horticultural Society's Chairman of the RHS Orchid Registration Advisory Group, Johan Hermans, and Honorary Research Associate at the Royal Botanical Garden at Kew, Mark Chase explain why they decided to reject the proposal submitted to the RHS by the authors of *The Odontoglossum Story* (Dalström, Higgins, Deburghgraeve, 2020) (which was supported by nearly 200 orchid growers and scientists from 18 countries), to re-instate primarily *Odontoglossum* and *Sigmatostalix* as valid genera. The decision to reject the proposal was made during a RHS meeting in London in May of 2022. The previously long-term held position in this debate by primarily Chase, made the outcome of the meeting disappointing but hardly unexpected. In the 2022 article Chase also discusses the arguments for and against the taxonomic transfer and in doing so challenges the authors of the recently published scientific treatment of the genus *Odontoglossum* (Dalström et al., 2020). It is therefore proper to clarify some facts and respond to Chase's reasoning.

**Übersetzung:** Ein Brief an die Redakteure von AOS "Orchids", D.O.G. "Die Orchidee" und "The Orchid Review" als Antwort auf den Artikel "Odontoglossum oder Oncidium?" ("Notes on Names") (2022).

Sehr geehrte Redakteure,

in einem Artikel in AOS "Orchids" 92(9), "Die Orchidee" 73(5) und "The Orchid Review" (Sep. 2022) erklären der Vorsitzende der RHS Orchid Registration Advisory Group der Royal Horticultural Society, Johan Hermans, und der Honorary Research Associate am Royal Botanical Garden in Kew, Mark Chase, warum sie beschlossen haben, den von den Autoren von "The Odontoglossum Story" (Dalström, Higgins, Deburghgraeve, 2020) bei der RHS eingereichten Vorschlag abzulehnen (der von fast 200 Orchideenzüchtern und Wissenschaftlern aus 18 Ländern unterstützt wurde), vor allem *Odontoglossum* und *Sigmatostalix* wieder als gültige Gattungen einzuführen. Die Entscheidung, den Vorschlag abzulehnen, wurde auf einer RHS-Tagung in London im Mai 2022 getroffen. Da Chase in dieser Debatte schon seit Langem diese Position vertritt, war das Ergebnis der Tagung zwar enttäuschend, aber nicht unerwartet. In dem Artikel von 2022 erörtert Chase auch die Argumente für und gegen den taxonomischen Transfer und widerspricht dabei den Autoren der kürzlich veröffentlichten wissenschaftlichen Bearbeitung der Gattung *Odontoglossum* (Dalström et al., 2020). Es ist daher angebracht, einige Fakten zu klären und auf die Argumentation von Chase zu antworten.

First of all, some of the arguments that were stated by Dalström et al. (2020), against the transfer of genera *Chamaeleorchis*, *Cochlioda*, *Collare-stuartense*, *Heteranthocidium*, *Odontoglossum*, *Sigmatostalix* and *Solenidiopsis* into *Oncidium* need to be repeated and explained here. The easiest and most accurate way to present some of these arguments is to quote them as they were published (Dalström et al., 2020). But before these arguments are presented, we should remember that the transfers were made before any scientific data or supporting evidence was officially published (Chase et al., 2008). This effectively prevented any meaningful or objective (and potentially obstructive) debate regarding the value of the data and the necessity of this significantly controversial nomenclatural change.

## Chase et al., state:

"If *Odontoglossum* is to be maintained as a distinct genus, then many more genera will need to be created or some long-known species with typical *Oncidium* floral morphology (e.g., *O. chrysomorphum* Lindl., *O. obryzatum* Rchb. f.) will have to be transferred into *Odontoglossum*, which removes any hope of morphological distinctiveness for *Odontoglossum*." (Chase et al., 2008).

The response to this statement was published by Dalström et al., (2020) and was intended as a re-assurance that no additional new genera were needed, in accordance with what was interpreted at the time as the desired sentiment of Chase. Dalström et al., agree that it is better to limit the creation of new genera in order to maintain as much taxonomic stability as possible. The complexity of reality, however, makes it difficult to handle taxonomical issues in such a way that everybody, from novices to learned professors, can readily understand each and every situation. Chase et al., (2022), argue that "single-noded, ancipitous pseudobulbs" is enough

to distinguish a true “*Oncidium*”, (except for all the genera where this is not the case, some of which, but not all, are listed by Chase and discussed below). Dalström et al., do agree that vegetative features can be very useful, but only in combination with additional features, such as floral morphology, geographical, ecological and any other supportive data. This combination can create distinct profiles for both species and genera. In the case of the “*chrysomorphum*” and “*obryzatum*” clades we have analyzed the vegetative features closely and discovered that they possess distinctive and consistent vegetative features, such as unifoliate and purple mottled pseudobulbs, which are both easy to recognize and useable as identifiable features. These features also correspond well with those seen in more typical *Odontoglossum* species. We therefore included the following paragraph in our book: “No additional new names are needed to maintain *Odontoglossum* as a distinct genus once the florally *Oncidium*-looking but vegetatively *Odontoglossum*-looking ‘*chrysomorphum*’ and ‘*obryzatum*’ [= *Odm. pictum* (Kunth) Dalström & W. E. Higgins], complexes were transferred into *Odontoglossum* (Dalström & Higgins, 2016). This is clearly a more conservative and stabilizing alternative than lumping everything into *Oncidium*, which will effectively eliminate any possibility to distinguish it as a genus.” (Dalström et al., 2020).

In other words: We believe that “single-noded, ancipitous pseudobulbs” is a weak and insufficient feature to distinguish a genus in the Oncidiinae.

**Chase et al., state:**

“After these changes [the removal of many *Cyrtochilum* species from *Odontoglossum* by Dalström (2001a)], there still remains a core group of *Odontoglossum* species that DNA studies have indicated are monophyletic, but these are deeply embedded in *Oncidium*.” (Chase et al., 2008).

**Dalström et al., response:**

“By studying the ‘...single maximum likelihood tree resulting from analysis

of the combined five-region data set for 736 individuals’ [Fig. 8 in Neubig et al. 2012]. ‘We can see that an extended *Odontoglossum* is not actually ‘deeply embedded’ in *Oncidium* at all, but a monophyletic sister-group to *Sigmatostalix*, and these two genera together form a monophyletic sister-group to *Oncidium (sensu stricto)*, even when the latter includes other distinguishable and monophyletic groups that have been described as separate genera, such as *Heteranthocidium* Szlach., Mytnik & Romowicz, *Chamaeleorchis* Senghas & Lückel.” (Dalström et al., 2020).

In other words: We consider the above Chase et al., statement to be misleading.

**Chase et al., statement:**

“In addition, *Cochlioda* Lindl. and *Symphyglossum* [as “*Symphyloglossum*”] Schltr., are hummingbird-pollinated species of *Oncidium* and also deeply imbedded in *Oncidium/Odontoglossum*, so these too are transferred.” (Chase et al., 2008).

**Dalström et al., response:**

*Symphyglossum sanguineum* (Rchb. f.) Schltr., as the sole species from that genus was transferred to *Odontoglossum* in 2001 based on molecular evidence and morphologic features and is not deeply embedded in *Oncidium (sensu stricto)*. It is, however, deeply embedded in the monophyletic and extended *Odontoglossum* (Dalström 2001b, 2012; Dalström & Higgins, 2016). The other former *Symphyglossum* species; *S. distans* (Rchb. f.) Garay & Dunsterv., and *S. umbrosum* (Rchb. f.) Garay & Dunsterv., belong in *Cyrtochilum* (Dalström, 2001a). Whether *Odm. sanguineum* is hummingbird pollinated or not is probably pure speculation. We are not aware of any scientific documentation for this phenomenon” (Dalström et al. 2020).

**Neubig, Chase et al., statement:**

“We feel that it is better to use vegetative features in combination with few floral traits to define broader genera... *Oncidium* is perhaps the best example of our contention that floral morphology must be foregone in Oncidiinae as

a basis for generic Characters... Floral traits in Oncidiinae are highly plastic and reflect evolutionary shifts in pollinators.’ (Neubig, Chase et al., 2012)” (Dalström et al. 2020).

**Dalström et al., response:**

“*Odontoglossum* is a distinct and monophyletic genus even when it includes the florally *Oncidium*-looking but vegetatively *Odontoglossum*-looking ‘*chrysomorphum*’ and ‘*pictum*’ complexes. What DNA research has taught us is that flower morphology is not entirely reliable as the sole basis for taxonomic decisions, but vegetative features are, particularly when combined with molecular evidence, flower morphology and any other available traits.” (Dalström et al., 2020).

These above mentioned arguments for the taxonomic transfer of *Odontoglossum* and other genera into *Oncidium* by Chase et al., and Neubig et al., are considered by the authors of “The *Odontoglossum* Story” to be “weak but also misleading and unconvincing” (Dalström et al., 2020). In addition to this, there are other factors that strengthen our opinion. Several species that belong in *Cyrtochilum*; “*Odm. contaypacchaense* D. E. Benn. & Christenson, “*Odm. machupicchuense* D. E. Benn. & Christenson, “*Odm. pseudomelantes* D. E. Benn. & Christenson and “*Odm. rubrocallosum* D. E. Benn. & Christenson, were also transferred to *Oncidium*, which reveals a lack of knowledge about these particular species and is therefore obviously misleading. The latter two of these have since been transferred to *Cyrtochilum*, but the former two are still kept as “*Oncidium*” species by Kew (WCSP; Oct. 16, 2022). This is incorrect and suggests that no DNA sequencing was ever made before the transfer, and illustrates another example of misleading information.

Then we come to the voucher specimens, which should be preserved for verification of the correctly identified samples. In order to do this I was kindly invited by Norris Williams and Mark Whitten to examine the specimens deposited in the herbarium of the Museum



of Natural History in Gainesville, Florida (FLAS). Many of the sampled specimens were present and correctly identified, but some were not. For example: N140 as “*epidendroides*” = *Odm. subuligerum*.

N165 as “*chrysomorphum*” was sequenced from a leaf only, and no flowers had been seen.

N178 as “sp.” was not found. Probably destroyed in the process.

N215 as “*hauensteinii*” was sequenced from a leaf only.

N639 as “*obryzatooides*” was not found. Probably destroyed in the process.

W1676 and W2421 as “cf. *schmidtianum*” (which is a “true” *Oncidium*) = *Odm. tipuloides* (sensu Dalström et al., 2020).

W1767 as “*lehmannii*” = *Odm. praenitens*.

W2391 as “*cirrhosum*” = *Odm. crinitum*.

B2529 as “*hallii*” = *Odm. paniculatum*. Very few specimens of other involved genera were examined due to a lack of time, and no examinations of the specimens deposited at Kew have been performed to date.

These examples of specimens that are (were) available for examination is why the cladogram on which the transfer by Chase et al., is based, is considered by us to be useful as a guideline but questionable and “misleading” as scientific evidence. In addition, the drawing in “Genera Orchidacearum” 5(2), fig. 529.3, p. 311 is labeled “*Oncidium naevium*” (Chase, Pridgeon et al. 2009) but shows an *Odontoglossum crocidipterum*. The color photo 119 is labeled *Oncidium cirrhosum*, but shows an *Odontoglossum crinitum* (the *Odm. popayanense* form). These and other mistakes could have been easily avoided if verification had been asked for by somebody who is more familiar with these orchids.

#### Mark Chase states (2022):

“From the start of this controversy, Dalström and his supporters have stated that their goal was preservation of their ‘pet’ (favourite) genus.”

The concept of having a “pet” genus originates in a discussion between a

very trustworthy colleague and none other than Mark Chase, who reportedly used this word to describe my scientific focus on this complex genus. That is why this word was used in quotes in Dalström et al. (2020) and in an ironical sense, which apparently can be difficult to comprehend.

#### Chase states (2022):

If we emphasize vegetative features and largely ignore floral morphology, then we conclude that *Odontoglossum* is the same as *Oncidium* and the two should be merged.”

By analyzing the molecular based cladogram produced by Chase et al. (2009), we can see that *Odontoglossum* and *Oncidium* are not the same. They are members of separate clades, which suggest separate evolutionary paths. The above conclusion by Chase is over-simplified and ignores that fact that many other and more distantly related genera also have “single-noded, ancipitous pseudobulbs” and would therefore have to be included in a “Mega-*Oncidium*” as well. To define a genus in Oncidiinae based on this single feature is weak, misleading and not particularly useful.

#### Chase states (2022):

“Unfortunately, *Oncidium* is the older name, so it must be used for the combined genus. I suspect that if *Odontoglossum* was the older name, we would not be having this disagreement. This would mean that no one, including Dalström et al., opposes expansion of the genus, but rather it is the loss of a favourite name, *Odontoglossum*, that creates the problem.”

This statement by Chase is an example of a completely wrong conclusion about what the “controversial” debate is all about, and reveals more of Chase’s bias than anything else. The authors of “The *Odontoglossum* Story” have made a lot of efforts to make it clear that *Odontoglossum* and *Sigmatostalix* in particular, but also *Heteranthodium* and potentially *Chamaeleorchis* should be treated as taxonomically distinct genera and separate from *Oncidium sensu strictu*. Why would we

then want to sink *Oncidium* into *Odontoglossum*? That has never been on our agenda and would be in opposition to our goal!

#### Chase states (2022):

“I was assuming that when Dalström said he wanted to keep *Odontoglossum* he meant just this core group [when, and to whom did I say this?].”

Chase refers here to his assumption that I “meant” that *Odontoglossum* should only include “the *Odontoglossum crispum* type group”. No such statement has been expressed by Dalström et al., (2020).

#### Chase states (2022):

“The Dalström et al., (2020) solution to the erection of many new genera is to include most of these morphologically different groups in *Odontoglossum* (Figure 1), making it much more diverse in terms of floral morphology than the remainder of *Oncidium*.”

Chase refers here to the members of genera *Cochlioda* and *Collare-stuartense*, and also *Symphyglossum sanguineum* and *Odontoglossum povedanum*, which all have been included in *Odontoglossum* by Dalström et al. (2020), based on molecular “evidence” produced by Chase et al. Chase then tries to demonstrate with photographs of flowers representing these groups, how diverse the floral morphology is, forgetting that he is a strong advocate for ignoring floral features altogether in Oncidiinae taxonomy. If Chase had shown photographs of the vegetative parts of the species featured in “Figure 1”, he would see how similar they really are. Chase seems to have problems with the floral diversity in *Odontoglossum sensu lato*, but forgets to mention that if *Odontoglossum* and *Sigmatostalix* were treated as oncidiums, then the floral diversity in *Oncidium* would be even greater.

#### Chase states (2022):

“My version of *Oncidium* is easily diagnosed: disregard (largely) the flowers and look at the pseudobulbs: they [referring here to the taxa included in



the former paragraph] are members of Oncidiinae with laterally flattened pseudobulbs. There are exceptions (*Cischweinfia* and some species of *Brassia*, *Miltonia*, *Miltoniopsis* and *Systeloglossum*), all of which differ in their floral morphology from any species in *Oncidium sensu Chase*, making them relatively easy to identify.”

There are other genera with laterally flattened pseudobulbs, such as *Gomesa* (including all the Brazilian taxa that it includes, according to Chase *et al.*), *Otoglossum*, *Quitlauzina*, *Rhynchostele*, *Rossioglossum*, *Solenidium*, *Trichopilia*, *Vitekorchis* etc. This creates a rather confusing situation where we sometimes should rely on flattened pseudobulbs only, except in the many cases where we have to rely on floral morphology, or the country where they occur, as for *Gomesa*:

“*Gomesa s.l.* is in general easily diagnosed by the synsepal (fused lateral sepals), but in a few cases these appear to have become secondarily free, rendering that character inapplicable, but then these species can be diagnosed by their Brazilian distribution and otherwise similar floral traits and habits...” (Chase *et al.* 2009).

A fused synsepal is found in several other Oncidiinae genera, and using the country of origin, or in this case the continent of origin, as a distinguishing feature for a genus is a rather weak solution, unless it is combined with floral and vegetative as well as other geographical and ecological features etc., which is something Dalström *et al.*, favor. So basically Chase *et al.*, also favor a combination of features to distinguish genera in Oncidiinae, and not just the shape of the pseudobulb. This means that Chase *et al.*, in fact must recognize that this single feature is not only inconsistent, but also “weak, unconvincing and misleading”.

#### Chase states (2022):

“I had never considered that to ‘save’ the name *Odontoglossum*, Dalström *et al.*, (2020) would include species with typical *Oncidium* morphology and a morphologically more diverse set of

species than those in the remainder of *Oncidium*.”

The molecular work by Chase *et al.* (2009, 2012), shows that the *chrysomorphum* and the *pictum* complexes are more closely related to *Odontoglossum sensu stricto*, than to *Oncidium sensu stricto*. This had been suspected for some time by us, but it was useful to have it verified by the molecular guideline provided by Chase *et al.* It did create a tricky situation though, regarding how to treat them. They could have been placed in one new polyphyletic, or two new monophyletic genera near the base of the *Odontoglossum sensu lato* branch in the DNA cladogram. That would have solved some issues, but create others. We don’t want to encourage the creation of polyphyletic genera so that option was discarded. But the problems with accepting these groups as separate new genera would be worse than to sink them into *Odontoglossum sensu lato*, we believe. *Odontoglossum* (former *Oncidium*) *pictum* belongs in one clade, while the virtually identical *Odontoglossum* (former *Oncidium*) *tipuloides* belongs in the other. It seems meaningless to us to treat these two species as belonging to separate genera, so we decided to add them to *Odontoglossum* and place them in a separate section with two series instead. This may not be a perfect solution but the alternatives were less appealing. We also have to remember that the rather easily recognized genus *Sigmatostalix* is evolutionary “caught in between” *Odontoglossum sensu lato* and *Oncidium sensu stricto*. This suggests that there is a definite molecular and evolutionary gap between *Odontoglossum sensu lato* and *Oncidium sensu stricto* and that these clades evolve in separate directions.

#### Chase states (2022):

“The claim that arguments for recognizing *Oncidium sensu Chase* are ‘unconvincing’ is based on the *a priori* belief that the name *Odontoglossum* must be saved.”

The “controversial” debate is not about preserving a name, but to accept genera *Odontoglossum* and *Sigmatostalix*,

and preferably at least *Heteranthocidium* and potentially *Chamaeleorchis* as generically distinct from *Oncidium*. This is based on strict scientific arguments and conclusions. This said, however, we do believe that from a horticultural historic point of view, there would be a good reason to preserve the name “*Odontoglossum*” since these particular species (and not *Oncidium sensu stricto* species), have played such a flamboyant role in particularly the European horticultural history. But the various Royal Horticultural Society committees obviously disagree on that. It is somewhat surprising though that the RHS does not have an interest in conserving such a significant chapter of their legacy when the possibility is readily available.

#### Chase states (2022):

Dalström *et al.* (2020) are clearly happy to include species with *Oncidium* morphology in their circumscription of *Odontoglossum*, but not the type species of *Oncidium* because that would set in motion the inclusion of *Odontoglossum* in *Oncidium*.”

Dalström *et al.* (2020) have not expressed any particular happiness over including species with *Oncidium* morphology (flowers) in *Odontoglossum*. On the contrary, the rather “inconvenient” position of the *chrysomorphum* and *pictum* clades (once the correct identifications of the sampled voucher specimens were confirmed), caused some consternation about how to treat them. Fortunately, some distinct vegetative features could be defined that help distinguishing this group. And as Chase *et al.*, so willingly declare: “Floral morphology has to be forgone in Oncidiinae because it is highly plastic and subject to shift in pollinators” (Chase, Pridgeon *et al.*, 2009).

#### Chase states (2022):

Did Dalström *et al.*, (2020) provide any morphological distinctions in the section on how to distinguish *Oncidium* and *Odontoglossum*? Dalström *et al.*, (2020) do not mention a single character that consistently differs in the species they wish to circumscribe as *Odontoglossum* from those in *Oncidium*.”



Mark Chase must be well aware of the fact that single features that consistently distinguish genera in Oncidiinae are virtually non-existent. That is why we use combinations of features, like what Chase *et al.*, use for *Cyrtochiloides*, *Cyrtochilum*, *Gomesa* and many other genera. Yes, there are generalities and exceptions because that is what evolution does for us. This is part of reality and we have to deal with it the best we can. We can also mention here that the orchid family is not defined by a single distinguishing feature, but by a combination of features. Most, if not all of these features can be found in other families but the combination makes Orchidaceae unique.

#### Chase states (2022):

“Furthermore, *Odontoglossum sensu Dalström et al.*, is neither clearly defined nor morphologically consistent, and they cannot tell a novice how to tell these two genera apart.”

We do not consider Chase to be a novice, but we do argue that *Odontoglossum sensu Dalström et al.*, is better defined than *Oncidium sensu Chase*. To rely on “single-noded, ancipitous pseudobulbs” as a single definition of a genus in Oncidiinae appears remarkably naive. There are too many exceptions to this overly-simplified concept for it to be realistic. The vegetative features for plants in *Odontoglossum* are remarkably consistent, as described in Dalström *et al.* (2020), but the vegetative features need to be combined with several other sets of features for the genus to be distinctly recognized, just as Chase *et al.*, suggests for *Gomesa* and other genera.

#### Chase states (2022):

Dalström *et al.*, appear to think that if they produce a book laying out this version of *Odontoglossum*, then it makes it convincing. However, when I look at what they have done, which is a great contribution at the species level, *The Odontoglossum Story* demonstrates clearly why this approach is such a failure.”

It seems logical to us that Chase considers our treatment of *Odontoglossum*

to be a failure. It doesn't cohere with his opinion! We argue, on the other hand, that our book is a great success based on the reception it has received from many growers and experienced taxonomists around the world. And that is what matters to us! The size, weight and price may not be particularly “user-friendly”, but the contents are. The various chapters of systematic and taxonomic discussions, the illustrated keys and detailed descriptions of every known species, combined with analytical drawings, distribution maps and lots of color photographs should be helpful to anybody who wants to learn more about this remarkable group of plants. It also constitutes a great tool for any novice or learned professor to get familiarized with this historically and horticultural significant orchid genus.

#### Literature cited:

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