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THE NAME *LEPANTHES TURIALVAE*: A SOURCE OF CONFUSION

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One of the most puzzling concepts in the orchid genus *Lepanthes* has been *L. turialvae* Rehb. fil., described from material collected in Costa Rica. The binomial has been applied to a bewildering array of species which obviously represent different concepts and has, as a result, become a rather convenient, albeit an inexact,

réceptacle to which are referred many Middle American collections the identification of which might pose difficulties or doubts.

During my investigation of the species of *Lepanthes* known from Mexico, the name *Lepanthes turialvae*, with its present vague interpretation, continually confounded the study. Critical examination of what has been called *Lepanthes turialvae* in the literature and herbaria convinces me that, whichever of the several concepts is followed, it is not represented in Mexico. Nevertheless, it would seem advisable to present the following notes which have grown out of my study of *Lepanthes turialvae*, so that they may be made available to future workers in the genus.

Lepanthes turialvae Reichenbach fl. in Bonpl. 3 (1855) 225.

Original description: "*Lepanthes Turialvae (Effusae)*: similis *L. cochleariformi* Sw. vaginis arctis, ostio tantum angusto microscopice muriculatis, folio ovato acuto bene limboso, racemi pectinati bracteis parvis muricatis, sepalo inferiori alte bifido, tepalis incisione triangula extrorsa acuta bilobis, labelli lobis obtuse triangulis. Stengel drei bis vier Zoll hoch mit Einschluss des zollangen Blatts. Blüthe nach Hrn. Dr. Oersted's zeichnung beschreiben. Sepalen dreieckig fleischroth. Tepala gelblich, oberseits mit Purpurroth auf Innenecke. Lippenlappen und Säule purpurroth. Turialva in Costarica, 3000'. Oersted."

In the same year, Reichenbach (Xen. Orch. 1 (1855) 151, 156, t. 50, fig. V, 15-16) published a second (Latin) and a third (German) description, differently worded but referring essentially to the same concept. In connection with these descriptions, he published drawings showing (V) a leaf (with its sheaths) and inflorescence (with one flower), (15) a flower and (16) a bract. Reichenbach intimated (loc. cit. 151) that the description was based upon Oersted's collection in the Copenhagen Herbarium ("Vid. sp. sicc. in herbario Hafniensi").

Through the kindness of Dr. O. Hagerup, director of this herbarium, we were able to borrow what is probably the type of *Lepanthes turialvae* and a water-color of the flower made by Oersted himself from the living plant in the field. The binomial "*Lepanthes Turialvae* Rchb." is written under the floral drawing in Reichenbach's own hand. There is no flower present on the specimen. Probably none was ever available to Reichenbach, for he stated clearly (Bonpl. 225) that his description of the flower was based on Oersted's drawing. Certainly, Reichenbach's rather inadequate sketches of the flower match very closely the Oersted water-color.



We have also, thanks to the cooperation of Dr. K. H. Reehinger, borrowed for study from the Reichenbach Herbarium in Vienna a sheet (No. 54553) on which there is a sterile specimen and a colored sketch of the flower. This sheet from Vienna is likewise labelled "*Lepanthes Turrialvae* Rehb."

The sterile collection from Vienna is said to represent Oersted's collection made in Turrialba, Costa Rica, at 3,000 feet altitude. It is here, however, that confusion enters the picture. Neither the two detached leaves nor the sheaths covering the secondary stem represent, in my opinion, the same species as that which we have thought to be the type. But the colored sketch of the flower is identical with that in the Copenhagen material and, accordingly, corresponds to the floral diagram published by Reichenbach.

Reichenbach's original description of the sterile parts seems not to have been based on the suborbicular-ovate and apically tridentate leaf which is found in Copenhagen, but rather on the elliptic and very acute leaves attached to sheet No. 54553 from Vienna. His second description (*Xen. Orch.* 151) definitely refers to the Copenhagen material, for he stated that the leaf was "apice attenuato brevissimo tridentatum."

There is in the Reichenbach Herbarium a sheet (No. 54553) which Reichenbach himself labelled "*Lepanthes Turrialvae*." The collection was made in Turrialba by Wendland: *Wendland 549*. This sheet has a habit sketch of the plant and a very careful drawing of the flower. Mr. Elmer W. Smith recently prepared a larger drawing from a flower taken from this collection, boiled and floated out in water; his drawing agrees in all essentials with Reichenbach's. In *Wendland 549*, the anterior lobe of the petals is triangular, the posterior obliquely subquadrate; whereas the petals shown in the type-drawing of the flower of *Lepanthes turrialvae* have both lobes elliptic-lanceolate. The petal-lobes in the former are not spreading and, consequently, have no sinus between them; those of the latter are shown as very spreading with a conspicuous sinus.

Reichenbach not only annotated *Wendland 549* as *Lepanthes turrialvae*. In an article treating of the orchids collected by Oersted, he (*Beiträge zu einer Orchideenkunde Central Americas* (1866) 57, 90, t. 10, figs. III, 16) illustrated as *Lepanthes turrialvae* what is obviously the orchid represented in the collection *Wendland 549*. This illustration is wholly distinct from that published in *Xenia Orchidacea* eleven years earlier.

In view of 1) the apparent discrepancy in sterile parts between the Copenhagen and the Vienna material collected by Oersted, both of which Reichenbach considered to represent *Lepanthes turialvae* and 2) his identification of *Wendland 549* as *L. turialvae*, we must agree that Reichenbach himself had either an extremely vague or else a confused conception of the morphological characters on which *L. turialvae* was based.

An examination of the Middle American material labelled *Lepanthes turialvae* in the Orchid Herbarium of Oakes Ames indicates the extent of the confusion attendant upon the use of this binomial, for there are clearly several concepts involved which only a monographic study of the genus can clarify. Even in modern taxonomic and floristic treatments, one can sense this confusion and doubt. Schweinfurth (in Standley "Flora of Costa Rica" in Field Mus. Nat. Hist. Bot. Publ. 391 (1937) 245) followed what he thought to be Reichenbach's concept of the species as shown by his citation as basic material both the Oersted and the Wendland collections. Pertinent to this point, perhaps, is Schweinfurth's observation (loc. cit. 242) that he considered *Lepanthes Brenesii* Schltr. to be "very close to, if not the same as, *L. turialvae*." In 1946, L. O. Williams (in Woodson & Schery "Flora of Panama" in Ann. Mo. Bot. Gard. 33 (1946) 84) stated that "*Lepanthes turialvae*, as now delimited, is possibly an aggregate of several species." Extreme confusion marks the treatment of *Lepanthes turialvae* by Ames & Correll ("Orchids of Guatemala" in Fieldiana, Bot. 26 (1952) 196, 204). Their description is so very broad that it would embrace a number of species. Furthermore, there is a discrepancy between the characters used to key out *Lepanthes turialvae* (e.g. "Lip without a ciliate apicule or pubescent midlobe . . .") and the detailed description of the concept (e.g. lip "with a minute puberulent apicule in the sinus").

In view of this extreme confusion which, as we have seen, goes as far back as the original description, I suggest that the binomial *Lepanthes turialvae* Rehb. fil. be rejected as a *nomen confusum* in accordance with Articles 63 and 65 of the *International Code of*

¹ There is here a discrepancy between the French and the English versions. The French version (as well as the Spanish) uses the word "confusion" where the English (and the German: "Irrtum") employs "error": "Un nom est a rejeter . . . s'il est une source de confusion." [Lanjour has stated in the preface of the *International Code* . . . that "it was decided [by the Nomenclature Section] that, should there be any inconsistency between the versions, the English one would be regarded arbitrarily as correct."

Botanical Nomenclature as adopted at Paris in 1954: (Article 63) "A name must be rejected . . . if it is a source of error"¹ and (Article 65) "A name must be rejected if it is used in different senses and so has become a long-persistent source of error." It seems to me that no purpose would be served by trying to retain a name which apparently can never be clarified with satisfaction. However, in view of the fact that monographic studies in *Lepanthes* will shortly be initiated, I merely offer this as a suggestion and leave formal action to the monographer.

CHROMOSOME NUMBERS IN THE GENUS *KRAMERIA*: EVIDENCE FOR FAMILIAL STATUS

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The genus *Krameria* is composed of about 20 species of perennial herbs and shrubs, most of which occupy the warmer desert or semi-desert regions of North and South America (Britton, 1930). Since its initial description in 1762 the genus has been a taxonomic "problem", both as to rank and phyletic position. Some workers have recognized it as the single genus of the family *Krameriaceae* (Chodat, 1890; Small, 1903; Britton, 1930; Abrams, 1944; Cronquist, 1957; etc.); other workers have assigned the genus subfamilial rank within the *Leguminosae* (Benson and Darrow, 1954; Benson, 1957); while still others have relegated the group to merely tribal status within the subfamily *Caesalpinioideae* of the *Leguminosae* (Taubert, 1894; Capitaine, 1912; etc.).

Such differing taxonomic treatments are not particularly disturbing since most of the workers mentioned above are more or less in agreement that the relationship of *Krameria* lies within or close to the *Leguminosae* and in particular to the tribe *Caesalpinioideae*. However, there are serious doubts as to its phyletic position. It is interesting to note that while such an eminent worker as Taubert in Engler and Prantl's *PFLANZENFAMILIEN* treats the genus as a tribe within the subfamily *Caesalpinioideae* of the order *Rosales*, Hutchinson (1926) places the genus in the family *Polygalaceae* of the order *Polygalales*, quite removed from the *Leguminosae* proper. Indeed, Taubert had enough confidence