

## CLEMATIS TAXONOMY, A HISTORICAL REVIEW OF THE FORMING OF GENERA, SUBGENERA AND SECTIONS

Among botanists who have studied the taxonomy of the genus *Clematis* you find many different opinions. The views are mainly twofold. One is that some species or groups of species have such different characteristics that there is reason to divide the genus into different genera and/or subgenera and sections. The other opinion is that so many characteristics are common and connected to each other that the genus must be kept united. It is yet the view that a subdivision into sections, subsections and eventually series must be done.

In the following, I intend to make a chronological review of both directions and start with the first. The ambition is to give the background to the different synonyms present in the descriptions and classification of the different species. I begin in 1753, the year when Linnaeus published his great work **Species Plantarum**. This year is also the starting year for the nomenclature in taxonomy.

### BOTANISTS FORMING SEVERAL GENERA

#### Linnaeus (knighted Carl von Linné in 1757)

In the mentioned work, Linnaeus placed, between *Anemone* and *Thalictrum*, two closely related genera, *Atragene* and *Clematis*. To the first, which has staminodes, he brought besides *A. alpina* and *A. sibirica* a tropical species, *A. zeylanica*, and *A. capensis*. The latter today belongs to the genus *Anemone*. De Candolle later brought *A. zeylanica* to the new genus *Naravelia*. The genus *Clematis* was by Linnaeus split into *scandentes* (climbing) and *erectae* (upright-growing).

#### Conrad Moench

The next division was made by a German botanist, Conrad Moench, who in his work **Methodus Plantas horti botanici et agri Marburgensis** in 1794 from *Clematis* separated *Viticella* as a genus of its own with the type *V. deltoidea* (= *C. viticella* L.). As far as the nomenclature starting point for subgenera and sections the year 1805 has been chosen. In this year was published the first volume of Persoon's **Synopsis Plantarum** and Lamarck–de Candolle's third edition of **Flore de France**. In these two works are found for the first time the concepts subgenera and sections (Brizicky in *Taxon* 18:343–360, 1969.)

#### Persoon

Christian Hendrik Persoon was a German-Dutch botanist active in France. In 1805 and 1807, he published in Paris an extensive work in two volumes, **Synopsis Plantarum seu Enchiridium Botanicum**. Here he forms a subgenus to *Atragene*, which he names *Viorna*. To this he counts *C. balearica* Richard and *C. cirrhosa* L! He classifies the species *C. viorna* L. to *Clematis*. When later botanists have quoted him as author for *Viorna*, this has caused some confusion all to this day. Subgenus *Viorna* Gray or sect. *Viorna* Prantl in fact comprise quite other species. Persoon has under *Clematis* a subgenus *Erectae* to which he brings *C. maritima* L., *C. erecta* L., *C. angustifolia* Jacq., *C. ochroleuca* Aiton and *C. integrifolia* L. As *C. maritima* is non-upright-growing, it has here as in Jacquin been mixed up with *C. angustifolia*.

#### De Candolle

One of the really great botanists after Linnaeus was Augustin Pyramus de Candolle (1778–1841) active in Geneva. He was pioneering in several areas of botany and especially through a natural system created by himself. In **Regni Vegetabilis Systema Naturale** vol. 1, 1818, he gave the genus *Clematis* an extensive study. He divides *Clematis* in four sections, *Flammula* DC., *Viticella* (Moench) DC., *Cheiropsis* DC., and *Atragene* (L.) DC. He forms a new genus, *Naravelia*, where he brings *N. zeylanica* DC. (= *Atragene zeylanica* L.).

To section *Cheirosia* he brings *C. cirrhosa* L., *C. semitriloba* Lagasca, *C. balearica* Richard, *C. napaulensis* DC. and *C. montana* Buchanan (Persoon had as mentioned above brought *C. balearica* and *C. cirrhosa* to *Atragene* subgenus *Viorna*).

### Reichenbach

H.G. Ludwig Reichenbach (1793–1879) also belongs to the great followers of Linnaeus. He was a physician, botanist and zoologist, professor and head of the botanical garden in Dresden and is most known for several large magnificent illustrated botanical volumes.

In **Handbuch des natürlichen Pflanzensystems**, 1837, he brought under Gruppe *Clematideae* DC. the genera "*Viorna* Pers.", *Viticella* (Moench) DC., *Clematis* L., *Atragene* L. and *Naravelia* DC. Section *Cheirosia* DC. was classified as synonym to *Atragene* subgenus *Viorna* Persoon. Reichenbach has Persoon as author to *Viorna*. This implies that *Viorna* (Pers.) Reichenbach is to be considered as a synonym to *Atragene* subgenus *Viorna* Persoon and section *Cheirosia* DC.

### Spach

Edouard Spach published, in Paris, during the years 1839–1847, a work in 14 volumes, **Histoire Naturelle des Végétaux Phanérogames** where *Clematis* is treated in 7:257–284, 1839.

Here he divided *Ranunculaceae* tribus *Clematideae* DC. in the following way.

Genus *Atragene* L.

Genus *Cheirosia* (DC.) Spach

Genus *Viticella* Moench

Genus *Viorna* ("Reichenb.") Spach

Section *Euviorna* Spach

Section *Viornium* Spach

Genus *Meclatis* Spach

Genus *Clematis* (L.) Spach

Section *Vitalba* Spach

Section *Flammula* Spach

Section *Acidanthera* Spach

In *Viorna* section *Euviorna* Spach included two species, *Viorna cylindrica* Spach (= *Clematis crispa* L.) and *Viorna urnigera* Spach (= *Clematis viorna* L.) and in section *Viornium*, *Viorna integrifolia* Spach (= *Clematis integrifolia* L.).

Spach's view on Genus *Viorna* is new and deviating from the earlier by Persoon and Reichenbach.

The names are only described in French. As descriptions in Latin are missing they are considered illegitimate (according to Keener et Dennis in *Taxon* 1982).

### Torrey & Gray

John Torrey et Asa Gray have in **Flora of North America**, 1:10, 1838 "*Atragene* DC." as a subgenus to *Clematis* L. de Candolle, however, classified *Atragene* as a section, why the subgenus of Torrey et Gray ought to be written *Clematis* L. subgenus *Atragene* (L.) Torrey et Gray.

Asa Gray has in Sprague's **The Genera of the Plants of the United States** 1:13–16 Plate 1 & 2, 1848 *Atragene* L. and *Clematis* L. as different genera with *Clematis* sectio *Atragene* DC. as synonym.

### Kuntze

Otto Kuntze (1843–1907) was a German botanist and explorer active in Berlin. During a round-the-world travel in 1878 he made on different continents extensive collections among which a large number of clematis. On making the determination of species, he found that a unified study of the genus *Clematis* was missing. It gave him reason to study the taxonomy of these interesting plants.

In 1885 he published a **Monograph** on *Clematis* in *Verhandlungen des Botanischen Vereins für Brandenburg (Abhandlungen)* Heft 26:83–102.

His division into sections in this monograph is completely different from those of earlier botanists but has some background in Linnaeus' **Systema Naturae**.