

## UNEXPECTED HYBRIDS OF SPECTACULAR BLADDERWORTS SPECIES

MILOSLAV STUDNICKA • Botanic Gardens Liberec • Purkynova 1 • 460 01 Liberec • Czech Republic • botangarden@volny.cz

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### Introduction

The genus *Utricularia* is divided into 35 sections. Two of these sections—*Iperua* P. Taylor and *Orchidioides* DC.—have some of what are arguably the most spectacularly large and beautiful species in the genus. For examples, the beautiful white-flowered *U. alpina* and the red-flowered *U. quelchii* are both from section *Orchidioides*; the huge peltately-leaved *U. nelumbifolia* and hugely-flowered *U. humboldtii* are from section *Iperua*. Since these various species do not usually grow together in nature, and presumably have different pollinators, hybridization is not known from the wild.

It is nearly as difficult for attempts at hybridization to be made in cultivation. It is unfortunately rare for bladderworts from these sections to flower in cultivation. Synchronous flowering of different species from these sections to flower at the same facility is altogether sporadic. However, over the past fifteen years we have had a few opportunities to attempt hybridizations of these plants at the Botanic Gardens of Liberec.

To date, the hybrids are all infertile, but they expand vegetatively. The first successful hybrid cross was made between *U. humboldtii* (female) and *U. quelchii* (male) in 1990. The resulting plant is very similar to *U. humboldtii*, but it is distinctly smaller, leaves being mostly about 16 cm high. Following the nature of the seed parent, it does not produce bulbs but does produce aerial offshoots. The first flower of the hybrid, produced in August 1997, had 43 mm broad lower lip (see Figure 1). This hybrid makes an effort to produce flowers only sporadically, and that is why it is a poor horticultural plant (and not worth, in my opinion, being registered as a cultivar). Nevertheless, the successful hybridization of the species belonging to different sections of their genus is very interesting (see Discussion section, below).

The hybridization between *Utricularia quelchii* (female) and *U. praetermissa* is quite different, in being an easier plant to grow and flower. Accordingly, I have established a cultivar name for it (*Utricularia* 'Jitka'; Studnicka (2005)). I have also tried to make the same cross, but inverting it so that *U. praetermissa* was used as the female plant. The results were plants that produced flowers that look very much like the archetypical *U. praetermissa*! I suspected autogamy to be occurring (which would be very unusual in the section *Orchidioides*) and confirmed this later, by means of an isolated specimen of this species which produced viable seed.

Yet another hybrid was produced in 2000 between *U. alpina* (female) and *U. campbelliana* (male). This hybrid is characterized by flowers 54–59 mm across, and which are pallidly cerise (see Figure 2). The lower lip of the corolla is saddle-shaped, because it droops down on both sides. There is a golden-yellow palate splotch on the lower lip. The upper lip is longer than the upper calyx lobe. Flowers hang pendently on very thin, 20 cm tall peduncles. There is a whorl of three bracts on the stem, quite like in *U. campbelliana*. The plant is tuberous, and much smaller than *U. alpina*—spatulate leaves are at most only 7 cm long and 1 cm broad. Cultivation of this hybrid is unfortunately difficult, as in *U. campbelliana*. That is why the novelty, which bloomed for the first time in 2002, is probably unsuitable to most growers, and is not deserving of cultivar status.



Figure 1: A cross made between *U. humboldtii* (female) and *U. quelchii*.

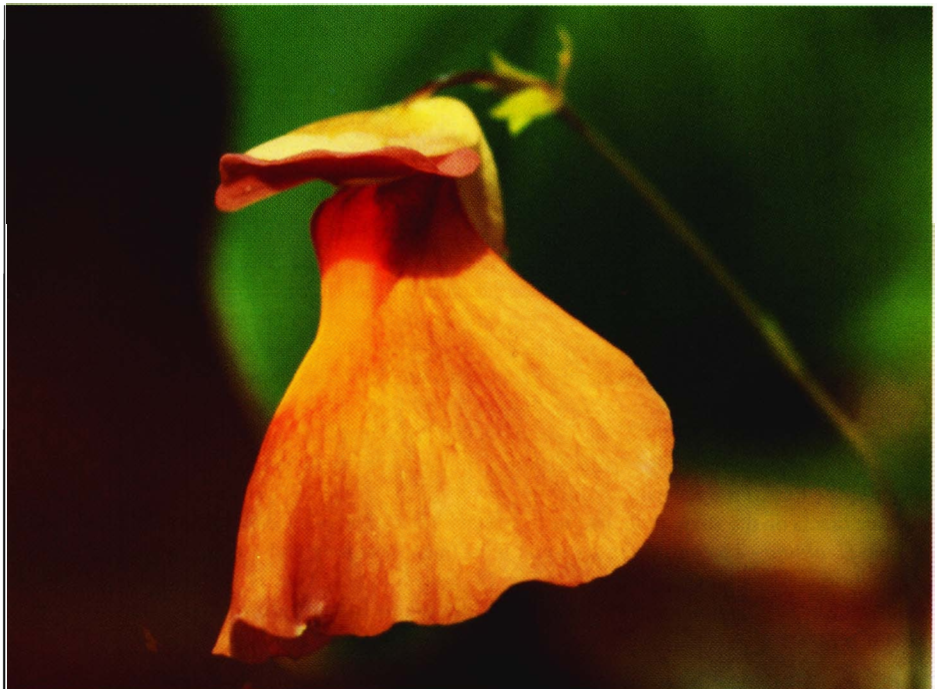


Figure 2: A cross made between *U. alpina* (female) and *U. campbelliana*.

Of the two very similar species *U. alpina* and *U. praetermissa*, autogamy was only observed in *U. praetermissa*.

It is striking that the cross *U. humboldtii* × *U. quelchii* produced viable seed, since the two parent plants are in different sections in the genus *Utricularia*. From this we could deduce that the sections *Iperua* and *Orchidioides* are closely related. Alternatively, we could deduce that *U. humboldtii* is more properly identified as a species from the section *Orchidioides*. Furthermore, if *U. humboldtii* were transferred to section *Orchidioides*, the section *Iperua* would have to be given a new name since it will have lost its type species. Should we accept this transferral, we find that the section *Orchidioides* (including *U. humboldtii*) and the section that was previously called *Iperua* occur in geographically separated areas. Section *Orchidioides* would occupy the Andes, Venezuelan mountains, and the northern part of the Brazilian Shield. The section that was once called *Iperua* (but without *U. humboldtii* would be given a new name) would be restricted to the southern part of the Brazilian Shield. The primaeval Shield was divided into the northern and southern parts by the much younger Amazonian Basin. This geo-historical separation could be the reason for the segregation of the sections *Orchidioides* and *Iperua*. We find various analogies in both sections, like tuberous species (*U. geminiloba* in *Iperua*!) and species symbiotic to *Bromeliaceae*, with aerial shoots.

The counter-hypothesis, i.e. transferring *U. quelchii* into section *Iperua* is not as compelling since the geographic separation of the two new sections is not as clean. Furthermore, there are a number of other species in section *Orchidioides* (such as *U. endresii*) that are clearly closely related to *U. alpina*.

Perhaps in these ruminations, we should also take into consideration botanical intuition. If you compare the strange solid spatulate dark-green leaves of both *U. humboldtii* and *U. quelchii*, they seem to be native sisters; and the hybridization discussed here seems to be less surprising.

References:

Studnicka, M. 2005, New cultivar: *Utricularia* 'Jitka', Carniv. Pl. Newslett. 34: 27-28.



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