A note on the chromosome numbers of three taxa distributed on the Betic and Atlas Mountains.

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The three taxa here discussed are found on the mountains of both SE Spain and NW Africa, illustrating the floristic connections across the Gibraltar Strait.

I here present the chromosome numbers of these three species, as established on material collected in SE Spain during the first OPTIMA Iter Mediterraneum and in Morocco during a former study (Galland 1984 and in press).

Platycapnos saxicola Willik.

Granada: Sierra de la Sagra, 2250 m, *1972*.

Chromosome number: $n = 16$ (anaphase I, pollen mitosis), $2n = 32$ (somatic mitosis).

This species is restricted to limestone screes on the high mountains of SE Spain (Granada and Jaén prov.) and Morocco (Middle and High Atlas); its morphology appears to be similar on both ranges and reflects a strong adaptation to this particular environment.

The same chromosome number ($n = 16$) was found in the High Atlas (M'Goun, 3300 m, Galland unpubl.). Quézel (1957) published a different figure for a Moroccan plant ($2n = 28$); however, this count is not in agreement with the basic chromosome number $x = 8$ usually found in the *Fumariaceae*.

Scutellaria orientalis L. subsp. ***hispanica*** (Boiss) Greuter & Burdet.

Granada: Sierra de Baza, Santa Barbara, 2000 m, *1504*.

Chromosome number: $n = 11$ (pollen mitosis).

The distribution of *S. orientalis* is interesting: SE Europe and the Near East on one side and SE Spain to Morocco on the other side.

According to Jahandiez & Maire (1934), there should be three varieties in SE Spain and Morocco: *S. orientalis* var. *hispanica* Boiss. on the Betic mountains, var. *demnatensis* (Cosson) Batt. (subsp. *demnatensis* Batt.) and var. *porphyrantha* Litard & Maire on the Atlas mountains. However, Richardson (1972) mentions that the species is variable throughout its range and that the consistency of the distinctions between these taxa should be verified.

A specimen belonging to subsp. *demnatensis* and collected in the High Atlas had the same chromosome number as the Spanish plant.

Galland (1984 and in press) pointed out that this number confirms the relationships

between *S. orientalis* and the species of sect. *Lupulinaria* which consists mainly of Asiatic taxa, plus *S. alpina.*

The caryotypes of the Spanish and Moroccan plants seem to be closely similar, with 5 very small chromosomes and 6 distinctly long ones; one satellite was, however, clearly and constantly observed only for the subsp. *hispanica.*

Thlaspi granatense Boiss & Reut.

Granada: Sierra de Baza, Santa Barbara, 2000 m, *1412.*

Chromosome number: $n = 7$ (pollen mitosis), $2n = 14$ (root tips mitosis).

Within the aggregate *Thlaspi perfoliatum* L., *T. granatense*, endemic to the mountains of SE Spain, has been shown to be very close to *T. rotundifolium tineo* (x *T. tineoi* Nyman), found on the mountains of Morocco, Algeria and Siciliy (Galland & Favarger 1988; Galland to be published). Both taxa are similar with respect to the distinctive morphological traits which characterize them within the aggregate, and they have the same chromosome number: they are both diploid ($2n = 14$), whereas in the W. Mediterranean area only tetraploid ($2n = 28$) and hexaploid ($2n = 42$) *T. perfoliatum* s.str. has been found so far.

Discussion.

These three cases are representative of the pattern which characterizes most of the vicarious taxa growing north and south of the Gibraltar Strait: they generally have the same chromosome number, although their presently accepted taxonomy may reflect varying degrees of morphological similaritiy.

The same taxon may be found on both the Betic and Atlas ranges, as in *Platycapnos saxicola*, and also in *Anthericum baeticum*, *Arenaria armerina*, *Minuartia funkij*, *Draba lutescens*, *Euphrasia wilkommii*, *Veronica sibthorpioides*, *Erigeron mairei*, etc. (Galland 1984 and in press).

A morphological differentiation between couples of vicarious taxa may be reflected by recognition as distinct varieties or subspecies (*Draba hispanica* var. *hispanica* (E) — var. *maroccana* (M); *Scutellaria orientalis* subsp. *hispanica* (E) — subsp. *demnatensis* and var. *porphyrantha* (M); *Narcissus rupicola* subsp. *rupicola* (E) — subsp. *marvieri* and subsp. *watieri* (M), etc.) or even species (*Thlaspi granatense* (E) — *T. rotundifolium* (M); *Papaver rupifragum* (E) — *P. atlanticum* (M); *Potentilla nevadensis* (E) — *P. maura* (M), *Hippocrepis valentina* (E) — *H. liouvillei* (M), etc.).

Nevertheless, one should keep in mind that taxonomy often reflects the views of botanists rather than true phylogenetic relathionships. These relationships, which are of great biogeographical significance, should be studied in detail in the frame of an in-depth and comprehensive survey of the Betic and Atlas floras.

References

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