Evolutionary history of *Meconopsis cambrica* (Papaveraceae), a Tertiary relict plant

Joachim W. Kadereit, Institut für Spezielle Botanik und Botanischer Garten, Johannes Gutenberg-Universität Mainz, 55099 Mainz, Germany (Kadereit@uni-mainz.de)

*Seminarios de Evolución (Máster de Biología Evolutiva)
17 de Mayo 2012, 12:00; Salón de Grados, Facultad de Biología, edificio rojo*

*Meconopsis cambrica* (L.)Vig. is native to Wales, England, France, Spain and probably also to Ireland, and widely naturalized in Ireland and Great Britain. Apart from this western European species, the genus *Meconopsis* is distributed with 50+ species in the Himalayan area.

The evolutionary history of *M. cambrica* will be analysed on three levels.

1. Using DNA sequence data, it will be shown that *Meconopsis* (as well as *Papaver*) is not monophyletic, and that *M. cambrica* is best regarded as part of *Papaver* s.str. This conclusion is supported by ontogenetic studies of gynoeceum development. The split between *M. cambrica* and its sister clade within *Papaver* s.str. can be dated to 12.8 (6.4 - 19.2) million years ago (myr) confirming the assessment of *M. cambrica* as a Tertiary relic.

2. Intraspecifically, *M. cambrica* can be divided into a 'northern' (Great Britain, Massif Central, western Pyrenees, Iberian Systm) and a 'southern' (central and eastern Pyrenees) group using cpDNA and AFLP data. The split between these two groups can be dated to 1.5 (0.4 - 2.8) myr. The intraspecific structure of the species is interpreted as an ancient phylogeographic pattern that has survived through probably several glacial periods, and indicates the existence of northerly refugia.

3. In Great Britain, naturalized *M. cambrica* is much more common than native *M. cambrica*. It will be shown that the naturalized populations of *M. cambrica* in Great Britain originated from the central and/or eastern Pyrenees. Furthermore, it will be shown that gene flow between native and naturalized populations appears to be rare irrespective of their close vicinity. When present, gene flow seems to have taken place from native into naturalized populations.

References


