

Genetic Differentiation among Populations of *Cicerbita alpina* (L.) Wallroth (Asteraceae) in the Western Alps

Thomas Michl^{a,*}, Stefan Huck^a, Peter Haase^a, and Burkhard Büdel^b

^a Department of Limnology and Conservation, Senckenberg Research Institute and Natural History Museum, Clamecyst. 12, D-63571 Gelnhausen, Germany.

Fax: +49-6051-61954-3118. E-mail: Thomas.Michl@senckenberg.de

^b Plant Ecology and Systematics, Department of Biology, University of Kaiserslautern, P. O. Box 3049, D-67653 Kaiserslautern, Germany

* Author for correspondence and reprint requests

Z. Naturforsch. **62c**, 747–756 (2007); received April 27/June 21, 2007

In this study we analyzed the genetic population structure of the hygrophilous tall-herb *Cicerbita alpina* in the western Alps because this group of mountain plants is underrepresented in the biogeographical literature. AFLP (amplified fragment length polymorphism) fingerprints of 40 samples were analyzed from four populations situated in a transect from the southwestern Alps to the eastern part of the western Alps and one population from the Black Forest outside the Alps. Two genetic groups can be distinguished. The first group (A) comprises the populations from the northern and eastern parts of the western Alps, and the second group (B) comprises the populations from the southwestern Alps and the Black Forest. Group A originates most likely from at least one refugium in the southern piedmont regions of the Alps. This result provides molecular evidence for a humid climate at the southern margin of the Alps during the Würm glaciation. Group B originates presumably from western or northern direction and we discuss two possible scenarios for the colonization of the Alps, *i. e.* (1) long-distance dispersal from southwestern refugia and (2) colonization from nearby refugia in the western and/or northern Alpine forelands. The study demonstrates that the target species harbours considerable genetic diversity, even on a regional scale, and therefore is a suitable model for phylogeographic research.

Key words: AFLP, *Cicerbita*, Molecular Phylogeography