



Phylogeny of the Southwest Asian *Pimpinella* and related genera based on nuclear and plastid sequences

S. Fereidounfar¹, F. Ghahremaninejad¹ and M. Khajehpiri²

¹Department of Plant Sciences, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran

²Department of Biology, Faculty of Sciences, University of Isfahan, Isfahan, Iran

Corresponding authors: S. Fereidounfar / F. Ghahremaninejad
E-mail: std_fereidounfar@khu.ac.ir / ghahremaninejad@khu.ac.ir

Genet. Mol. Res. 15 (4): gmr15048767

Received May 6, 2016

Accepted June 27, 2016

Published October 24, 2016

DOI <http://dx.doi.org/10.4238/gmr15048767>

Copyright © 2016 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution ShareAlike (CC BY-SA) 4.0 License.

ABSTRACT. *Pimpinella* L. is a large genus and arguably one of the most complex genera in the family Apiaceae. In this study, the infra-generic relationship between Southwest Asian *Pimpinella* species and their generic allies in the tribe Pimpinelleae Spreng were investigated using sequence data from the cpDNA (chloroplast DNA) *rps16* exon and *rpL16* intron and nuclear ribosomal DNA internal transcribed spacer regions. In total, 185 accessions representing 52 species of *Pimpinella*, 8 species of *Aegopodium*, and the monotypic *Opsicarpium* Mozaff. were analyzed using maximum parsimony and Bayesian methods. In our phylogenetic study, *Pimpinella* and *Opsicarpium* were considered together as a monophyletic group within the tribe Pimpinelleae. As a result, *Opsicarpium insignis* Mozaff has been formally transferred to *Pimpinella*. Our results indicate that the genera *Pimpinella* and *Reutera* Boiss formed a monophyletic group and also supported merging the

genus *Reutera* with *Pimpinella*. This study confirms the transfer of the Southwest Asian *Pimpinella anthriscoides* (Boiss.) F. Ghahrem., Khajepiri & Mozaff to the genus *Aegopodium* as *Aegopodium tribracteolatum* Schmalh.

Key words: cpDNA *rps16* exon; cpDNA *rpL16* intron; nrDNA ITS; Phylogeny; *Pimpinella*; Umbelliferae