

Mgr. Vojtech Zeisek. Doctoral thesis. 'Taxonomic principles, reproductive systems, population genetics and relationships between selected groups of genus *Taraxacum* (Asteraceae)'.

Report by Adrian John Richards, B.Sc., Ph.D., Emeritus Professor in Botany, University of Newcastle upon Tyne UK.

This thesis represents a considerable body of extremely competent, orderly and well-interpreted work which has severally and together made very considerable advances in our understanding of the evolution and taxonomy of the very large, complex and seminal genus *Taraxacum*. In doing so, it has resolved a number of long-standing taxonomic mysteries and problems. The work concentrates on various diploid sexual groups of the genus, mostly of Asian origin, and in doing so throws fresh light on origins and relationships within the genus as a whole. The candidate is familiar with a range of molecular techniques and has shown his ability to analyse and interpret molecular data in ways that enhance our understanding of breeding systems, evolutionary relationships, and classification. He also displays a sophisticated understanding of problems associated with the classification and taxonomy of apomictic groups. In my view this thesis is well deserving of the award of a Doctorate.

It is noteworthy that much of this work is greatly dependent on the magnificent collection of meticulously documented and maintained living material at Pruhonice of several decades standing. This is the cornerstone of the consistently critical and revelatory work that has emerged from the team of Kirschner and Stepanek. It is clear that Vojtech Zeisek has formed an important part of this team for some years and has clearly performed at the level of its formidably high standards.

Questions for the Candidate:

'Taxonomic classification must be in agreement with (the) evolutionary history of the species'. Discuss in the light of examples where molecular and morphological evidence is non-congruent. Can you distinguish between taxonomy and classification?

Do we really need 'one (taxonomic) model to fit all'?

Why do you think there are no agamospermous diploids? Are you surprised that there are so few sexual polyploids in *Taraxacum*?

Can flow-cytometry detect aneuploids? Do you think the detection of aneuploidy in *Taraxacum* is important?

Discuss the possible role played by transposons in generating agamospermous variability.

Most of the NW European sections (Celtica, Naevosa, Spectabilia, Obliqua, Crocea/Macrodonta) and alpine sections (Fontana, Alpina, Dissecta, Cucullata) have no sexuals. Why?

You mention facultative agamospermy in triploids. How do you think this works?

What is the rubber content of other *Taraxacum* sections?

Apart from rubber analysis, what was the point of the *T. kok-saghyz/bicorne* chapter? How does *T. brevicornutum* fit in? Why not measure % achene set? Is the KASP data of any use? What was the *T. kok-saghyz* material? How does it differ from the other two species?

In Fig. 29.1 *T. pyrenaicum* appears twice. Is it really an *Obliqua* species?

How do you explain four satellite chromosomes in triploid *T. pseudobithynicum*?

Defend the concept that section *Scariosa* has no montane species.