

Abstract

Tribe *Triticeae* is a polyphyletic taxon in the *Poaceae* family which contains both perennial and annual species, cultivated cereal crops (*Triticum*, *Secale*, *Hordeum*) and weeds (*Elymus*, *Elytrigia*, *Aegilops*). The tribe was first recognized and described at the beginning of 19th century and its genera composition have been changed many times since. As the tribe's genera are not monophyletic, its interpretation is problematic and it is also difficult to clarify evolutionary relationships among genera and species mainly in genus *Elymus*. Historical classification of species *Elymus repens* and *Elymus hispidus* is difficult due to morphological similarities and genomic divergence. These species are classified into many genera. Species' genome analyses were first performed in the 30's of 20th century mainly within the research of plant breeding and hybridization among cultivated cereal crops and species of distinct genera. The most important and complete papers with species and genera genome combinations were published by Löve and Dewey. Other plant scientists continued in their footsteps. Genome constitutions of all allopolyploids of *Triticeae* are not yet known. There is no satisfactory classification of the tribe which would well characterize their phylogenetic relationships.