

First data on DNA barcoding of representatives of the genus *Centaurea* s.l. (Asteraceae) from Bulgaria

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Abstract

The genus *Centaurea* s.l. is one of the richest and most taxonomically complex of the Asteraceae family. It includes between 400 and 700 species, of which more than 70 are found in Bulgaria – a territory considered as one of the secondary centers of speciation of the genus. There is a large number of endemics (Bulgarian and Balkan) with endemism reaching up to 50% in some groups, such as *Cyanus* gr. Due to the ongoing active speciation in the Balkans, the boundaries between closely related taxa cannot be easily established based entirely on morphological features. DNA barcoding is cost-efficient and reliable approach for identifying and retrieving previously known species with the potential to accelerate the discovery of new plant species. Despite the huge potential of the method, no any Bulgarian population from this genus has been barcoded so far. The present study presents the first DNA barcoding data of 11 species of the genus *Centaurea* s.l. from 12 populations based on four regions – ITS, matK, rbcL and trnH-psbA. The first three DNA barcodes are promising whereas the trnH-psbA has somewhat lower resolution. The preliminary results suggest that the '*Cyanus*' group is well separated from the '*Centaurea* s.str.' group which corresponds well to their treatment as different subgenera or genera. Within '*Cyanus*', grouping of taxa corresponds well to the morphology of the species. Within '*Centaurea* s.str.', although a relatively low number of species has been included, grouping of taxa in most cases is congruent with the morphological characters. However, there are some incongruent tree topologies which should be investigated further both by repeating the extraction and sequencing of the samples, and by addition of new, presumably closely related species in the study.

Keywords

Bulgarian flora, endemism, Balkan Peninsula, biodiversity, group *Cyanus*

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Conflicts of interest

The authors confirm no conflict of interest.