

ABSTRACT

Biodiversity on the Planet encounters the taxonomic crisis. The precise identification of known species along with accurate depiction of anonymous species is need of hours for commercial and research applications. There are some demerits of traditional taxonomic and morphological methods of describing organisms correctly. There must be some alternative and complementary approaches that could help in plant identification on molecular level. DNA based methods of reorganization of organisms is widely accepted in recent years. Because DNA sequences are unique for each species, they are considered as genetic 'barcodes' and have the potential to solve the problems inherent to the kind of taxonomy practiced so far. DNA barcoding is currently gaining popularity due to its simplicity and high accuracy as compared to the complexity and subjective biases associated with morphology-based identification of taxa. The standard chloroplast DNA barcode for land plants is normally recommended by the Consortium for the Barcode of Life (CBOL) plant working group. Fragments of the *rbcL* and *matK* genes with lengths of about 600 and 800 nucleotides, respectively are considered as the best plant barcode with a high discriminatory efficiency. In Lahore city, there are many natural and manmade seasonal wetlands. These wetlands contribute significantly towards balancing of ecosystem. Some selected hydrophytes were collected from the ponds in the different areas of Lahore. Then their *cpDNA* was extracted and desired markers were amplified using polymerase chain reaction. Then these markers then sequenced using Sanger's methods. Nucleotide BLAST was done to the check the similarity index. Then the software Mega6 was used to construct the phylogenetic tree. The classical taxonomic classification was then compared with the classification obtained through DNA Barcode tree. The present study is useful for authentic identification of new plant species and clearly shows high degree of intra-specific and inter-specific evolutionary relation among all tested species of aquatic plants.