

Evaluation of Phylogenetic Relationships with mtLSU Gene Region in The Lichen-Forming Ascomycete Some Species *Umbilicaria* Hoffm., Which Spreaded in TurkeyMehmet Gökhan HALICI¹, Tuba BUÇUKOĞLU¹, Mithat GÜLLÜ¹¹Erciyes University, Faculty of Science, Department of Biology, Kayseri, Turkey
mithatgullu23@gmail.com

Aim of the study: This study has been made to examine as phylogenetic relationships of some species belong to genus *Umbilicaria* Hoffm., which widely spreaded in our country. It was aimed to determine the intraspecific genetic variation using mtLSU primer, which has not been studied much in *Umbilicaria* before, using PCR technique.

Material and Methods: A total of 16 samples of *Umbilicaria* were collected from different parts of Turkey. DNA isolation was performed by using Qiagen DNeasy plant mini kit. PCR analysis was performed by using mtLSU primers. The evolutionary history was inferred using the Neighbor Joining method. The analysis involved 19 nucleotide sequences. Evolutionary analyses were conducted in MEGA6 (Molecular Evolutionary Genetics Analysis)

Results and Discussion: The results are used to investigate the related regions by sequence analysis and to reveal the intraspecific genetic variation between *Umbilicaria* specimen. The phylogenetic analysis for mtLSU sequences are performed with the investigated samples. *U. decussata* (Vill.) Zahlbr. and *U. nylanderiana* (Zahlbr.) H. Magn. were obtained from the gene bank, but no sequence gene bank belonging to other species was found. For the working samples, the mtLSU gene region will be first worked. The analyses are conducted by the help the Neighbor Joining method in order to reveal the genetic similarities between our studied samples. When we examine the Neighbor Joining dendrogram, the branches separated in the phylogenetic tree made will be close to each other and distant species will be determined. Although the *Umbilicaria* genus can be morphologically determined, the ITS gene region has provided good results in phylogenetic tree to distinguish species from previous studies.

Keywords: Genetic variation, Lichens, mtLSU, Neighbor Joining, Phylogenetic analysis, *Umbilicaria*, *U. decussata*, *U. nylanderiana*.

Acknowledgements: This study was financially supported by, FDK-2014-5226, coded Erciyes University project.