World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:10, No:04, 2016

Phenological Variability among Stipagrostis ciliata Accessions Growing under Arid Bioclimate of Southern of Tunisia

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Abstract : Most ecological studies in North Africa arid bioclimate reveal a process of continuous degradation of pastoral ecosystems as a result of overgrazing during a long time. This degradation appears across the depletion of perennial grass species. Indeed, the majority of steppe ecosystems are characterized by a low density of perennial grasses. The objective of the present work is to examine the phenology and the above ground growth of several Stipagrostis ciliata accessions, growing under different arid bioclimate of North Africa (case of Tunisia). The results of the ANOVA test, next to the mean values of all measurements show significant differences in all morphological parameters of S. ciliata accessions. Plant diameter, biovolume, root biomass with protective sleeve and spike number show very significant. Differences between S. ciliata accessions. Significance tests for the differences of means indicate high distinctiveness of accessions. Pearson's correlation analysis of the morphological traits suggests that these traits are significantly and positively correlated. Cluster analysis indicates overall differences among accessions and exhibits the presence of three clusters. The Principal component analysis (PCA) is applied on a table with four observations and 12 variables. Dispersion of Stipagrostis ciliata accessions on the first two axes of principal component analysis confirms the presence of three groups of plants. The characterization of Stipagrostis ciliata plants has shown that significant differences exist in terms of morphological and phenological parameters.

Keywords : accession, morphology, phenology, Stipagrostis ciliata
Conference Title : ICAB 2016 : International Conference on Advances in Botany
Conference Location : Istanbul, Türkiye
Conference Dates : April 19-20, 2016