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Research Paper

Assessment of genetic diversity among pearl millet landraces (*pennisetum glaucum* (L.) R. Br.) from Algerian Sahara using qualitative traits

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Abstract

Genetic diversity is an asset for successful genetic improvement but also for food security. The aim of this work was to evaluate the variability of some millet landraces through qualitative traits using the Shannon diversity index (H'). Results showed existence of a high diversity for: green fodder yield potential (0.977), flag leaf attitude (0.736), bristle colour (0.625) and seed shape (0.632). Intermediate diversity index was found in the majority of the traits studied with the highest value for the anther colour (0.594), the tillering attitude (0.591), the number of nodal tillers (0.526), the spikelet shattering/threshing (0.468) and the seed colour (0.415). The same value of intermediate diversity index (0.497) was registered for the plant aspect, the bristle length and the seed covering. The lowest values of diversity index concerned the spikelet glume colour (0.403) and the spike shape (0.377). In vegetative traits, these classes were dominant: erect growth habit (64.71 %), intermediate green fodder yield potential (41.18 %), good plant aspect (76.47), few numbers of nodal tillers (82.35 %) and intermediate flag leaf attitude (64.71 %). In inflorescence traits, the greatest proportions were registered for: cylindrical spike shape (52.94 %), non-shattering and free threshing (64.71 %), tan tips for bristle colour (64.71 %), medium bristle length (76.47 %), brown group for anther colour (52.94 %) and yellow green group for spikelet glume colour (64.71 %). In seeds, intermediate seed covering class dominated with 76.47 %, followed by the gray brown group in seed colour (64.71 %) and finally by oblanceolate seed shape class (52.94 %).

Key words: Local ecotypes, Pearl millet, Shannon diversity index, Variability.

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