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THÈME 02 : Production végétale et phytopathologie.

Titre de la présentation affichée :

Proline production of a leguminous species Vigna uniguculata L. under salt stress

Auteur : TORCHE Yacine

Affiliation : Centre Universiataire Abdelhafid Boussouf Mila

Co auteurs : Nourhane DJAOUMBLA, Amel ZEGADA,

Résumé

Cowpea Vigna unguiculata (L.) Walp. is an important crop providing seeds with high value of protein content. Natively from the sub-Saharan region, cowpea has the particularity to tolerate drought comparing to other leguminous; it is cultivated in isolated region in Algeria such as Northern Sahara and Kabylia. Cowpea shows remarkable capacity to resist abiotic stresses, then, this species is very important for the country which is under the threat of salt soils that affect crop growth and yield. In order to assess cowpea tolerance to salinity stress, proline production was assessed on eleven cowpea genotypes including seven Algerian and four foreign genotypes. After germination, three seedlings from each genotype were treated with salt (0, 50, 100 and 150mM NaCl) with the apparition of the fifth leave. The colorimetric method to assess proline production was used and the results were subjected to standard curve of proline content (proline/proline (µm) equivalent). Results were subjected statistical analysis (ANOVA), they show that salinity affected significantly proline production. Generally, the saharaian genotypes recorded the best results, they were tolerant physiologically with increase of proline production under 50 and 100mM NaCl specifically, indeed, the genotype from El-Oued and Ilizi increase their proline production while the Black Tadleghat from Timimoun was physiologically stable increasing proline production only under 100mM NaCl. The other genotypes including foreign genotypes couldn't maintain high production of proline under salinity stress, they were severely affected by salt, on the other hand the Cowpea genotype from Asia recorded the highest value for proline production under 100mM NaCl (87.41 µm). Genotypes with larger seed were the most susceptible to salinity with low proline production while the most tolerant induce proline production have small seeds and so it is interesting to start a breeding program to have tolerant hybrids to salinity with larger seeds.

Mots-clés : Salt stress; Proline production; Cowpea; Saharian genotypes