

ABSTRACT

In the present research work, assesment of genetic variability of canola (*Brassica napus* L.) cultivars grown under NaCl salt stress was done. Four cultivars of canola i.e., Defender, Pakola, Jewel and Garrison were selected for this study and their seeds were obtained from NARC Islamabad. The screening of salt levels was done by performing germination experiment at lab, Botany department GCU, Lahore. The germination percentage of four cultivars was observed at 0, 50, 100, 150 and 200mM NaCl in full strength Hoagland solution. Germination percentage of all canola cultivars was reduced under salt stress but reduction was high in cultivar Jewel and low in cultivar Pakola.

The pot experiment was done at Botanic Garden GC University, Lahore and subjected to 0 and 150mM NaCl in Hoagland solution. One month old plants were subjected to salinity. Plants were harvested three times and Growth parameters like Plant Height, fresh weight of root, fresh weight of shoot, dry weight of root, dry weight of shoot were observed. Analytical parameters like relative water content (RWC), relative increase or decrease in plant height, fresh weights of root and shoot and dry weight of root and shoot were measured. Canola cultivars were also evaluated by photosynthetic parmeters like chlorophyll contents and gas exchange parameters and showed significant results. All the parmeters showed significant positive Correlation to each other. Chlorophyll a/b ratio showed no significant correlation with plant height, photosynthetic rate and water use efficiency.

Total 15 RAPD primers were used for the RAPD analysis of four cultivars of canola. Total ten oligo-nucleotide RAPD primers produced positive results in PCR and showed total 83 DNA bands, out of which 67 bands were found to be polymorphic produced from 10 primers with an average of 6.7 polymorphic bands per primer. Primer OPD-03 produced highest number of bands (15 bands) while OPB-09 produced lowest number of bands (3 band). The range of percentage polymorphism was between 50.0 (OPR-13) to 100 (OPB-09, OPA-04 and OPE-13) with an average of 82.57. Cultivar Jewel resulted in maximum genotype specific markers (12) and considered as salt tolerant and cultivar Pakola considered as salt sensitive.