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## **GENETIC DIVERSITY ANALYSIS OF SOME BARLEY GENOTYPES FOR SALT TOLERANCE USING SSR MARKERS**

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### **ABSTRACT**



The aim of the present work was to evaluate the performance of 20 barley genotypes and find out the genetic diversity of these genotypes for salt tolerance using simple sequence repeats during two consecutive seasons; 2009/2010 and 2010/2011. Twenty barley genotypes differed in their tolerance potentiality against salinity were planted in two screening field experiments at two locations; Sakha, North Egypt (as a control) and El-Serw (as saline site) to detect their tolerance to salt stress. They were planted in a randomized complete block design with three replicates. Results revealed that the Egyptian barley cultivars Giza 123, California Mariout and genotype no.12 (line 12 from Cyprus) were salt tolerant besides genotype no.9 (Saiko) giving a moderate salt tolerance response and they all exhibited the highest mean values for some traits such as heading date and plant height under saline condition. Out of ten primers used, only six primers (Bmac0209, Bmac0316, Scssr03907, Bmag770, HVM67 and HVHOTRI) generated clear patterns with high polymorphism. This six discriminatory primer pairs were used to evaluate the genetic diversity of salt tolerance in the 20 barley genotypes. Based on phylogenetic trees the data from the dendrogram constructed with SSR markers showed four clusters. All the salt tolerant genotypes and some moderately salt tolerant genotypes were found in two closely related clusters, while all the sensitive genotypes and moderate ones were closely related in the other two clusters. It was concluded that those barley genotypes which showed salt tolerance could serve as potentially novel germplasm that could be exploited for the development of new breeding lines with high level of salinity tolerance and to accelerate genetic advancement in barley and better cost efficient compared to conventional and tedious screening procedures under saline field