Contribution ID: **196** Type: **Oral**

GROUNDNUT MUTANTS WITH END-OF-SEASON DROUGHT TOLERANCE FOR THE MARGINAL DRY LANDS OF NORTH KORDOFAN STATE, SUDAN

Groundnut (Arachis hypogaea L.) produced in the traditional small-scale rain fed sector of Western Sudan accounts for 80% of the total annual groundnut acreage producing 70% of the total production. Low productivity of groundnut is a characteristic feature in North Kordofan State which is characterized as the most vulnerable state to the impact of climate change. Terminal drought stress resulting from reduction in rainfall amount and distribution at the end of the season is the most deleterious drought period as it coincides with groundnut pod filling and maturation periods. High and stable yields under the subsistence farming conditions in North Kordofan could only be realized by using adapted high yielding drought tolerant genotypes. Mutation induction by gamma rays was utilized to create genetic variability aiming at increasing the chances of obtaining genotypes with the desired drought tolerant traits. Groundnut mutants at M5 generation advanced by single seed descend method were evaluated for end-of-season drought tolerance. Terminal drought period of 25 days was imposed after 60 days from planting using the rainout shelter. The same mutants were evaluated under optimum growing conditions under sprinkler irrigation system. Mutants which survived 25 days terminal drought stress were further evaluated for agronomic performance under rain fed conditions. Groundnut mutant Barberton-B-30-3 produced 1024 kg/ha mean pod yield over 12 seasons compared to 926 kg/ha for the check cultivar. The stability and GGE biplot analysis for the last 5 seasons, showed that Baberton-B-30-3 was stable and produced good yield in both high and low rain fall seasons. Hence, Barberton-B-30-3 is a suitable mutant for sustainable profitable yields in the marginal dry lands of North Kordofan State.

Country or International Organization

Sudan, Agricultural Research Corporation

Author: Dr ABDALLA, Elgailani (Agricultural Research Corporation)

Co-authors: Mr BAKHIT, Omar (Agricultural Research Corporation); Dr ELSHEIKH, Salih (Agricultural Research Corporation)

Presenter: Dr ABDALLA, Elgailani (Agricultural Research Corporation)

Track Classification: Mutation breeding for adaptation to climate change in seed propagated crops