Contribution ID: **160** Type: **Poster**

GAMMA RAYS, EMS AND SODIUM AZIDE INDUCED GENETIC VARIABILITY FOR QUANTITATIVE TRAITS IN AJARA GHANSAL NON-BASMATI AROMATIC RICE

Ajara Ghansal, a local non-basmati aromatic rice cultivar (landrace) adapted to the agro-climatic conditions of Ajara Taluk of Kolhapur, Maharashtra, India possesses a good aroma and good cooking qualities, thus is a very good potential for domestic market. However, it has a low yield potential. Five hundred (500) Ajara Ghansal seeds were subjected to mutagenic treatments using gamma rays, Ethyl methanesulphonate (EMS) and Sodium Azide (SA) separately to induce genetic variability. M1 seeds were harvested and planted in a plant-to-row basis to develop M2 generation. Among M2 populations, several mutations were identified: semi-dwarf plant height, early maturity, and good yield, as well as lodging resistance. Dwarf mutants with shorter culms were identified in plants derived from treatments with 0.8%, 1.0% and 1.2% EMS and 200 Gy. Early maturing mutants were detected in EMS treatments (1.0 and 1.2%), SA (0.006%) and 200 Gy treatments with 135-137 days of maturity as compared to control (160 days). Mutants with higher number of tillers were also identified in EMS (1.0%), SA (0.006%) and 150Gy, with numbers ranging from 61 to 70 per plant as compared to 19 tillers/plant in control. Mutants with increased panicle length ranging from 24.30 to 28.89 cm were observed form treatments using EMS (1.0 and 1.2%), SA (0.006%) and 150 and 200 Gy as compared to control (23.03cm). Mutants with higher yield/plant were detected under EMS (1.0%), SA (0.006%) and 150Gy treatments which showed higher yield/plant (138 – 349g/plant) as compared to control (58g/plant). Lodging resistant mutants were recorded in EMS (1.0 and 1.2%), SA (0.006%) and 150Gy treatments at the time of harvesting; where control plants have shown complete lodging. Among the mutagenic treatments, 1.0% and 1.2% treatments of EMS and 150Gy treatment of gamma rays were found to be the most effective treatments for induction of desirable mutants.

Country or International Organization

India

Primary author: Dr GAIKWAD, NIKHIL (DEPT OF BOTANY, SHIVAJI UNIVERSITY, KOLHAPUR 416004)

Co-authors: Mr RAMTAKE, Akash (Dept of Botany, Shivaji University, Kolhapur 416004); Mr DESAI, Shitalkumar (Dept of Botany, Shivaji University, Kolhapur 416004); Dr DHOLE, VINOD (NABTD,BARC,TROMBAY, MUMBAI400085)

Presenters: Mr RAMTAKE, Akash (Dept of Botany, Shivaji University, Kolhapur 416004); Dr GAIKWAD, NIKHIL (DEPT OF BOTANY, SHIVAJI UNIVERSITY, KOLHAPUR 416004); Mr DESAI, Shitalkumar (Dept of Botany, Shivaji University, Kolhapur 416004); Dr DHOLE, VINOD (NABTD,BARC,TROMBAY, MUMBAI400085)

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