

Non-selective herbicide tolerant rice mutant line, Namil(SA)-gla1 and Namil(EMS)-gla1

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[Introduction]

Non-selective herbicides are an effective way for weed management in crop production. Herbicide tolerant crop developed via transgenic method has already been developed in many crops. However, only a few transgenic herbicide tolerant crops have been successfully commercialized due to problems such as environmental regulations. Here, we report two non-selective herbicide tolerant mutant line of rice, Namil(SA)-gla1 and Namil(EMS)-gla1, tolerant to glufosinate ammonium (BASTA) from a mutagenized population.

[Materials and Methods]

Herbicide tolerance was evaluated in M₇ 5,135 plants and M₇ 2,888 plants mutagenized by Ethyl-methane-sulfonate (EMS) and sodium azide (SA) treatment of Korea japonica rice "Namil", respectively. BASTA sprayed on plants at 0.5X and 1.0X concentrations, respectively, 2 to 3 weeks after sowing. Evaluation for herbicide tolerance was made based on retention of greenness of leaves and absence of drying symptoms.

[Results and Discussions]

Namil(SA)-gla1 and Namil(EMS)-gla1 showed stable tolerant to glufosinate ammonium (BASTA), and showed similar agricultural traits such as heading date, clum length, number of spikelet compared to wild type rice variety "Namil". The herbicide tolerant lines could be used as a breeding material for the development of herbicide tolerant rice varieties using the non-transgenic method.

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