2-2. Selection of Mutant Rice lines Resistant to Brown Planthopper, *Nilaparvata lugens* Stål after γ-Ray Irradiation

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M1 generation of mutant rice lines were raised from 12 cultivars of rice (*Orizae sativa* L.) including 'Hwaseongbyeo' using -ray irradiation in a γ-ray irradiation facility (Co^{60}, 10K Curie) of KAERI (Korea Atomic Energy Research Institute). To establish M1 lines, 4~50,000 grains of dried rice seed of each cultivar were irradiated for 6 hours with a ray amount of 250Gy (25kr) and 300Gy (30kr), respectively. After irradiation, preference and growth inhibition of 30 M3 generation lines and 12 original culrivars of rice were examined against brown planthopper (BPH) in the laboratory and green house conditions.

Two new mutant lines of 'Wonnong 15' and 'SHM-11' originated from the Chinese cultivar, 'Sanghaehyanghyeolla', were selected with their great resistance against BPH. The preference rate of BPH to 3~4 leaf-stage rice seedlings of 'Wonnong 15' and 'SHM-11' was -53.6%, -62.9%, respectively. The growth of 'Wonnong 15' and 'SHM-11' was not affected at all by inoculation of 5 BPH female adults per seedling that is more than enough to devastate the susceptible rice cultivar, 'Chucheongbyeo' in 3 weeks.

Further research of the analysis of feeding behavior pattern, oviposition, development of BPH, effect on the other rice insect pests, secondary chemicals, and resistance-related rice genes would be greatly helpful for the development of BPH-resistant rice cultivar.