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Rice Leaf Blast Incidence and Blast Race Diversity in Korea in 2018 and 2019

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Rice blast caused by *Magnaporthe oryzae* is the most devastating disease of rice which is a staple crop for the food supply in Korea. Rice blast resistant cultivars have been developed and supplied to control the disease. Despite these efforts, resistant cultivars have become susceptible to disease in the field within a few years due to pathogenic variation of the blast fungus. To prevent the outbreak of blast disease, the incidence of rice blast in 2018 and 2019 were surveyed nationwide and race differentiation was analyzed. Rice blast nursery test at 12 sites was performed using 481 and 492 rice cultivars and varieties in 2018 and 2019, respectively, and disease severity was determined. The susceptible reaction against rice leaf blast was observed at four regions (Jeonju, Gyehwa, Miryang, and Sangju) in 2018, while regions showing susceptible reaction was increased by eight including Jeonju, Gyehwa, Miryang, and Sangju in 2019. A total of 604 isolates were collected at Cheorwon, Suwon, and Jeonju in 2018 and 2019. Isolates were categorized into 5 KJ races and 30 KI races in 2018, and 11 KJ races and 31 KI races in 2019, according to the reaction patterns of eight Korean differential cultivars. The ratio of isolates belonging to KJ race and KI race was 30:70 in 2018 and 75:25 in 2019. Among the races, KJ-101, KJ-201, and KJ-301 were predominant in both years, and KI-101, KI-401, and KI-209 were predominant only in 2018. In 2019, KJ-103, KJ-106, KJ-202, KJ-204, KJ-302, and KJ-401 newly emerged. These results provide important information for the breeding of blast-resistant rice varieties.

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