

Evaluation of Bacterial Leaf Blight Resistance and Agronomic Traits of Tungkenyu 1081336

Cheng-Hong Li¹ and Cheng-En Kuo²

Abstract

Bacterial leaf blight of rice is a systemic disease caused by *Xanthomonas oryzae* pv. *oryzae* (Xoo). This study aimed to evaluate the resistance of near-isogenic lines (NILs) harboring resistance genes bred by backcross by inoculated and natural nurseries. Firstly, six NILs in Taitung 33, Tainan 11, Tainung 71 or Taichung Sen 10 background, which harboring at least three bacterial blight disease resistance genes, were inoculated with three isolated Xoo strains (XF116, XE2, and XF135) in two crop seasons, 2021. The results showed that the six NILs had shorter lesion length than their recurrent parents. However, the lesion length of the same variety or line caused by three strains of bacteria were significant different in two crop seasons, implying that the severity of bacterial blight leaf disease could be influenced by the environment. Moreover, the background recovery rate of three BC₄ NILs in Taitung 33 backgrounds were analyzed, confirming that the background recovery rates ranging from 76.9% to 85.6%. Tungkenyu 1081336 was further selected and evaluated the resistance of bacterial blight leaf disease, had good polished rice appearance, under the conventional farming condition, but without applying any pesticides. Results showed that Tungkenyu 1081336 was resistant to the bacterial blight leaf disease and might have higher yield performance with appropriate cultivation methods. Therefore, this NIL could be adopted in field prone to bacterial blight disease and could be a choice for environment-friendly cultivation fields.

Keywords: Rice, Bacterial blight leaf disease of rice, Molecular marker-assisted breeding, Resistance, Agronomic trait

¹ Former Assistant Researcher of Taitung DARES, COA.

² Assistant Researcher of Taitung DARES, COA.