Resistance of Different *Casuarina equisetifolia* Clones to *Anoplophora chinensis* and *Lymantria xylina*

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Abstract

Casuarinas are predominant species of the coastal shelter forest in southeastern China. *Anoplophora chinensis* and *Lymantria xylina* are serious insect pests which cause mortality in *Casuarina equisetifolia* shelter forests. Breeding resistant varieties is one of the effective methods to control insect damage and crop loss. In order to identify clones resistant to *A. chinensis* and *L. xylina,* 48 *C. equisetifolia* clones were screened in Huian of Fujian province during 2010-2012.

Based on investigation and artificial inoculation in the plantation, the population density, damage rate and eclosion rate were assessed. The results showed that 3 clones, Hui13, Hui76 and Hui83 were strongly resistant to *A. chinensis,* with the average population density of larva less than 0.12 insect per plant, damage rate lower than 12 %, and eclosion rate was zero. After artificial inoculation, less than 20% of larvae could develop into adults on these clones. The 2 clones, Hui58 and Hui88 were sensitive to *A. chinensis,* with the average population density of larva more than 1.0 insect per plant, damage rate over 66%, and eclosion rate over 35%. More than 60% of larvae could successfully develop to adults after artificial inoculation.

Feeding selectivity, development characteristics and frass amount of *L. xylina* larvae were observed by rearing larvae with twig of different *C. equisetifolia* clones under indoor conditions. Results showed that 4 clones, Zhanjiang3, Hui83, Hui76 and GuangdongA8-2, were strongly resistant to *L. xylina.* The relative frequency feeding number of larvae on these 4 clones was less than 0.03, pupation rate of larva lower than 15-55 %, and mean weight of pupae less than 0.6 g per pupa. Frass weight of larva fed on the twig of these 4 clones was less than those of other clones. The 2 clones, Dongshan2 and Kangfeng, were susceptible to *L. xylina.* Relative feeding frequency number was over 0.08, pupation rate of the larvae 70%, mean pupa weight more than 0.66 g per pupa, and frass weight more than others.