Developing a Novel Approach for Controlled Pollination of *Casuarina equisetifolia*

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Abstract

Casuarina equisetifolia is an important tree species in the tropical and subtropical zones of Asia, Africa and the Pacific. There is an increasing interest in producing intra- and inter-specific hybrids of this casuarina species. Conventional bagging controlled pollination method involving bagging yielded very low fruit set and poor seed germination. High temperature and humidity in the pollination bags appeared to have instigated unfavorable conditions for pollination and fertilization mechanism. Hence , a novel approach was developed by conducting pollination in closed chambers which functioned like pollination bags. Fruit set and seed germination percentage increased from 7.0 % to 89.9 %, and 8.1 % to 51.8 % respectively compared with the conventional bagging controlled pollination method. Based on the results, a controlled pollination glasshouse with 10 separated chambers has been designed to produce multiple hybrid combinations in a single pollination procedure.