

Determining the Origin of African Tulip Tree, *Spathodea campanulata* (Bignoniaceae), Populations in the Pacific Region Using Genetic Techniques

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Abstract

African tulip tree, *Spathodea campanulata* Beauv. (Bignoniaceae), is a problematic invasive weed in the Pacific region for which a biological control program has been initiated. The species is native in western and central Africa where three distinct subspecies are recognized. The polymorphic nature of the species increases the likelihood that natural enemies collected for biological control will have local adaptation to different variants of the plant. One of the potential biological control agents for *S. campanulata* is a gall forming eriophyid mite that is likely to complete multiple generations on a single host plant individual, and is therefore likely to develop local adaptations to certain plant variants. The African region where the Pacific *S. campanulata* population originated is expected to be the most appropriate region in which to collect biological control agents because natural enemies will be adapted to the same variant of *S. campanulata* that is present in the Pacific region. Morphological characteristics are unreliable for identification to the subspecies level, making it difficult to determine the origin of the Pacific population. DNA sequencing of five non-coding regions and Inter-Simple Sequence Repeats were used to determine the origin of the introduced *S. campanulata* population in Fiji. The closest relatives to the Fijian *S. campanulata* were plants from Ghana indicating that the *S. campanulata* population in Fiji originated from the West African subspecies, *S. campanulata* subsp. *campanulata* Beauv. West Africa is therefore the most appropriate region to survey for potential biological control agents for the management of *S. campanulata* in the Pacific.