

Genetic differentiation and phylogeography of partially sympatric species complex *Rhizophora mucronata* Lam. and *R-stylosa* Griff. using SSR markers

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Title	Genetic differentiation and phylogeography of partially sympatric species complex <i>Rhizophora mucronata</i> Lam. and <i>R-stylosa</i> Griff. using SSR markers
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Abstract	<p>a:3;i:0;s:493:"Background: Mangrove forests are ecologically important but globally threatened intertidal plant communities. Effective mangrove conservation requires the determination of species identity, management units, and genetic structure. Here, we investigate the genetic distinctiveness and genetic structure of an iconic but yet taxonomically confusing species complex <i>Rhizophora mucronata</i> and <i>R. stylosa</i> across their distributional range, by employing a suite of 20 informative nuclear SSR markers." ;i:1;s:914:"Results: Our results demonstrated the general genetic distinctiveness of <i>R. mucronata</i> and <i>R. stylosa</i>, and potential hybridization or introgression between them. We investigated the population genetics of each species without the putative hybrids, and found strong genetic structure between oceanic regions in both <i>R. mucronata</i> and <i>R. stylosa</i>. In <i>R. mucronata</i>, a strong divergence was detected between populations from the Indian Ocean region (Indian Ocean and Andaman Sea) and the Pacific Ocean region (Malacca Strait, South China Sea and Northwest Pacific Ocean). In <i>R. stylosa</i>, the genetic break was located more eastward, between populations from South and East China Sea and populations from the Southwest Pacific Ocean. The location of these genetic breaks coincided with the boundaries of oceanic currents, thus suggesting that oceanic circulation patterns might have acted as a cryptic barrier to gene flow." ;i:2;s:669:"Conclusions: Our findings have important implications on the conservation of mangroves, especially relating to replanting efforts and the definition of evolutionary significant units in <i>Rhizophora</i> species. We outlined the genetic structure and identified geographical areas that require further investigations for both <i>R. mucronata</i> and <i>R. stylosa</i>. These results serve as the foundation for the conservation genetics of <i>R. mucronata</i> and <i>R. stylosa</i> and highlighted the need to recognize the genetic distinctiveness of closely-related species, determine their respective genetic structure, and avoid artificially promoting hybridization in mangrove restoration programmes." ;}</p>
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