

High outcrossing rate and pollen dispersal distance of *diospyros celebica* bakh (ebenaceae), an endemic three species in Sulawesi Island, Indonesia

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Abstrak

Diospyros celebica Bakh., also known as Sulawesi ebony, is an endemic to central and northern Sulawesi. Information about pollen dispersal patterns of *D. celebica* have not been previously investigated. This study was aimed to determine pollination type, percentage of selfing and outcrossing, as well as distance of pollen dispersal of *D. celebica*. This study was conducted at experimental forest of Universitas Hasanuddin, Maros District, South Sulawesi Province, Indonesia. One hundred and sixty six individuals of *D. celebica* consisted of adult trees and seedlings were analyzed in this study. Ninety four adult trees were selected to become parent trees. The trees were mapped with GPS coordinates. All samples were genotyped using four SSR markers loci. Parental analysis and determination of pollen dispersal patterns were carried out using Cervus 3.0.3. Results indicated that the evaluated markers were effective for assigning candidate of male parents to all evaluated seedlings. Donated pollens could come from male parents in any directions relative to female parent positions. Pollen dispersal pattern showed outcrossing pollination among different male parents (pollen donated trees). The results indicated that seeds were produced predominately by outcrossing. Pollen dispersal reached up to 166 m. Pollen related processes were linked through female parents, pollinators availability and ecological environment. Simultaneous use of progeny genotyping, spatially explicit analysis of environmental variables and outcomes of plant–animal interactions were the key elements for an expanded approach to gene flow analysis considering dispersal via pollen and seeds. Research on pollen dispersal of *D. celebica* should be carried out in other forest types, such as mixed forest and highland forest.