

# Studi Kompatibilitas pada Persilangan Rubus spp. = Study of Compatibility on Crossing Rubus spp.

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## Abstrak

Pemahaman tentang sistem penyerbukan merupakan hal penting dalam program pemuliaan Rubus. Penelitian ini dilakukan untuk memahami biologi reproduksi pada Rubus dan kemudian memperoleh informasi mengenai kemungkinan terjadinya inkompatibilitas pada persilangan sendiri (self-compatibility) maupun persilangan antar jenis Rubus (interspecific compatibility). Sebanyak 10 spesies Rubus diantaranya *R. alceifolius*, *R. chrysophyllus*, *R. fraxinifolius*, *R. lineatus*, *R. moluccanus*, *R. pyrifolius*, *R. rosifolius*, *Rubus* sp. (blackberry), dan *Rubus* sp. (Raspberry) diamati polennya melalui pengukuran viabilitas, perkecambahan, dan ukuran polen. Sembilan spesies Rubus diamati perkembangan dan morfologi bunganya, kemudian dilakukan persilangan lengkap full diallel. Hasil polen menunjukkan viabilitas polen Rubus bervariasi antara 59,68% sampai 98,12%, dan ukuran polen yang berbeda-beda tergantung spesiesnya. Pengamatan perkembangan dan morfologi bunga menunjukkan keragaman karakteristik bunga yang ditunjukkan pada pistil, stamen, bentuk torus, dan perbedaan waktu tahapan perkembangan bunga masing-masing spesies. Keragaman polen dan morfologi bunga pada Rubus diduga berpengaruh terhadap tipe penyerbukan dan kemampuan bersilangnya. Berdasarkan hal tersebut, dilakukan pengamatan kompatibilitas persilangan. Hasil menunjukkan seluruh spesies Rubus kompatibel menyerbuk sendiri dan kompatibel menyerbuk dalam spesies, namun demikian hanya spesies *R. ellipticus*, *R. fraxinifolius*, *R. rosifolius*, dan *Rubus* sp (blackberry) yang memiliki kompatibilitas interspesifik. Korelasi yang signifikan ditunjukkan antara variabel persilangan dengan variabel morfologi bunga dan viabilitas polen. Kompatibilitas persilangan interspesifik diduga dipengaruhi oleh faktor genetik (sporophytic dan gametophytic incompatibility).

.....Understanding mechanisms of pollination are fundamental to the Rubus breeding program. The study was conducted to understand the reproductive biology of Rubus and to obtain information about the possibility of self-compatibility and interspecific compatibility on Rubus. Pollen observed sections were carried out on ten species of Rubus (*R. alceifolius*, *R. chrysophyllus*, *R. fraxinifolius*, *R. lineatus*, *R. moluccanus*, *R. pyrifolius*, *R. rosifolius*, *Rubus* sp. (blackberry), and *Rubus* sp. (Raspberry) pollen by measuring the pollen viability, germination, and pollen size. Flower development and morphology sections were carried out on nine species of Rubus flower. Furthermore, a complete cross with a full diallel was performed. Pollen results showed that the viability of Rubus pollen varied from 59.68% to 98.12%, and the pollen size varied depending on the species. Observations of flower development and morphology showed the variation of flower characteristics shown in the pistil, stamen, torus shape, and the different time stages of flower development of each species. Variations of pollen and flower morphology in Rubus are assumed to affect the type of pollination and the crossing ability. Based on these assumptions, observations of cross-compatibility were carried out. The results show that all Rubus species are self-compatible and intraspecific-compatible; however, only species *R. ellipticus*, *R. fraxinifolius*, *R. rosifolius*, and *Rubus* sp. (blackberry) have interspecific compatibility. There were significant correlates among pollination, flower, and pollen

variable. The interspecific compatibility was thought to be influenced by a genetic factor (sporophytic dan gametophytic incompatibility).