



## Effect of rootstock and scion on resistance of cocoa clones to vascular streak dieback caused by *Ceratobasidium theobromae*



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### ABSTRACT

Vascular streak dieback (VSD) disease, caused by *Ceratobasidium theobromae*, is one of the cocoa diseases responsible for decreasing cocoa production and declining cocoa plantation area in Indonesia. Planting cocoa clones with partial resistance to VSD has been useful in managing the disease. These have been produced by grafting or budding selected resistant genotype of cocoa onto unselected seedlings. The main objective of this study was to evaluate the effect of rootstock × scion combinations on VSD resistance through top grafting. The experiment used five rootstocks and scions selected from five clones, namely: MCC-01, Sulawesi 1 (S-1), M-05, RB, BB-01 and the disease evaluation was carried out under natural infection conditions for 18 months. The experimental area was surrounded by cocoa trees from a severely VSD-infested cocoa farm. M-05 performed well for suppression of VSD incidence and severity as a scion regardless of the genotype of the rootstocks followed by Sulawesi 1 (S-1). The rootstocks M-05 and S-1 did not significantly reduce VSD incidence or severity on the susceptible scions from different clones such as MCC-01, RB and BB-01. MCC-01 showed a higher incidence and severity of VSD as a scion regardless of the rootstock genotype. This research proves that rootstocks from cocoa genotypes considered resistant, moderately susceptible, or susceptible to VSD, have little effect on cocoa scion resistance to VSD. Cocoa scion genotypes play a crucial role in VSD resistance.

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## ABSTRACT

Vascular streak dieback (VSD) disease, caused by *Ceratobasidium theobromae*, is one of the cocoa diseases responsible for decreasing of cocoa production and declining of cocoa plantation area in Indonesia. Planting of cocoa clones with partial resistance to VSD has been useful in managing the disease. These have been produced by grafting or budding selected resistant genotype of cocoa on to unselected seedlings. The main objective of this study was to evaluate the effect of rootstock x scion combinations on VSD resistance through top grafting. The experiment used five rootstocks and scions selected from five clones, namely: MCC-01, Sulawesi 1 (S-1), M-05, RB, BB-01 and the disease evaluation was carried out under natural infection conditions for 18 months. The experimental area was surrounded by cocoa trees from a severely VSD-infested cocoa farm. M-05 performed well for suppression of VSD incidence and severity as a scion regardless of the genotype of the rootstocks followed by Sulawesi 1 (S-1). The rootstocks M-05 and S-1 did not significantly reduce VSD incidence or severity on the susceptible scions from different clones such as MCC-01, RB and BB-01. MCC-01 showed a higher incidence and severity of VSD as a scion regardless of the rootstock genotype. This research proves that rootstocks from cocoa genotypes considered resistant, moderately susceptible or susceptible to VSD, have little effect on cocoa scion resistance to VSD. Cocoa scion genotypes play a crucial role in VSD resistance.

Keywords: Rootstock; Scion; Vascular streak dieback; Cocoa Resistance