Heritability and Genetic Control of Black Pod Disease Caused by *P. palmivora* Infection in Cacao


**Introduction**

Black pod resistance in cacao could be developed through breeding programs. Understanding heritability and genetic control of black pod resistance should be beneficial (Sudarsono et al. 2008). The objective of the study was to evaluate heritability and genetic control of resistance against black pod disease caused by *P. palmivora* in cacao.

**Materials & Methods**

Hybrid arrays were obtained (Table 1) by half diallel crosses among 5 cacao clones. After germination, leaves of 2 months old seedlings were tested against *P. palmivora*. Incubation was done using agar plug carrying freshly grown mycelia of *P. palmivora*. Lesion necroses symptoms were recorded 2 weeks after inoculation. The width of necroses symptoms and the disease index were calculated from recorded data. Data were used to determine heritability, general (GCA), & specific combining ability (SCA) for resistance characters.

**Results**

The broad & narrow sense heritabilities of black pod resistance characters were medium—high. GCA of TSH585, Sca6, and ICCRI3 were high. Crosses among ICCRI3xSca6, DR1xICS13, TSH585xICS13 and TSH585xDRI1 exhibited the best SCA for black pod disease resistance character (Table 2).

Black pod resistance in cacao was most probably controlled by at least two genes and one of them was recessive.

**Literature**


**Conclusions**

Crosses between cacao clone ICCRI3xSca6 and DR1xICS13 were the best for producing hybrid seeds with acceptable degrees of *P. palmivora* resistance character.

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