Diversity of ICCRI Cacao Germplasm Collections Based on Morphological and Molecular analysis[1]

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Introduction

Exploitation of genetic variability is a central issue in plant breeding. Therefore, understanding the variability of cacao germplasm collections are important activities in cacao breeding. The objective of the study was to evaluate the diversity of ICCRI cacao clone collections based on SSR markers (Sudarsono *et al. 2008).*

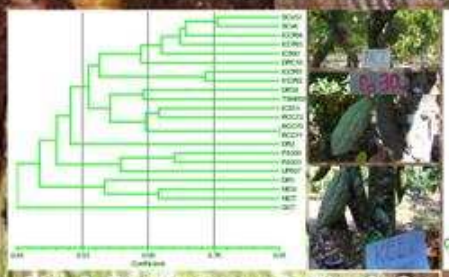

Fig. 2. Dendogram of ICCRI cacao collections based on morphology

Fig. 3. Cacao pods diversity

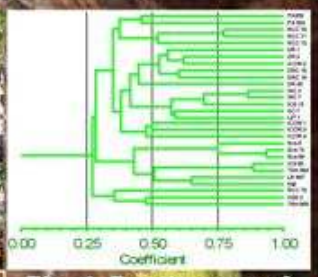

Fig. 4. Dendogram of cacao collections based on SSR marker

Materials & Methods

Twenty nine of cacao clones were analyzed for their morphological characters and subjected to SSR analysis using 24 SSR loci. Primer pairs developed previously developed were used. The data were analyzed using NTSYS 2.1 and phylogenetics were constructed.

Results

Representative diversity of flush color was presented in Fig. 1. Dendogram of ICCRI's cacao collections based on morphological characters was presented in Fig. 2. Fig. 3. represented diversity of cacao pods while Fig 4. represented dendogram of ICCRI's cacao collections based on SSR marker

Fig. 1. Representative diversity of young leaf (flush)

Conclusion

Either based on morphological characters and SSR markers, diversity of selected 29 clones of ICCRI's cacao collections was relatively high. Such high diversity of the clone collections were beneficial for breeding purposes. Cacao breeding for developing new superior clone by combining different superior characters from various cacao accessions should be possible.

Literature

Sudarsono A. Purwantara, Suhendi D. Rubiyo, & S. Kurniasih. 2008. Molecular Technique and Plant Breeding to Speed up the Development of Cacao (*Theobroma cacao* L.) Cultivar with Resistance against Black Pod Disease Due to *Phytophthora palmivora* Butl. Infection. KKP3T Research Report, Institut Pertanian Bogor, Bogor, Indonesia.

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