

Genetic of Rooting and Sprouting Abilities on Cuttings Propagation of Robusta Coffee Clones (*Coffea canephora* Pierre var. *robusta* Cheval)

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SUMMARY

A study to evaluate the genetic of rooting and sprouting abilities on cuttings propagation of robusta coffee was carried out at Kaliwining Experimental Station (45 m a.s.l.) at Jember, East Java. The experiments were conducted under rainy season as well as the dry one by using randomised complete block design with 14 clones and 4 replications. Cutting materials consisted of a node with 4-5 cm length of internodes. Each clone consisted of 100 cuttings in one replication without using any growth regulators. Cutting materials were planted on cutting bed. Observation was done after three months. The observed parameters were percentage of rooted cuttings, number of roots, total of root length, number of sprouts and total of sprout length.

The results showed that the percentage of rooted cuttings on rainy season is higher than that of on the dry one, in contrast the rooted cuttings possessed less number of roots and shorter length of roots as well as lighter roots dry weight. The success of cuttings propagation was significantly affected by genetic factor (clone), especially on the characteristics of percentage of rooted cuttings, total roots length and number of roots. BP 409 was considered the most difficult clone to be propagated by cuttings. Percentage of rooted cuttings and total roots length showed high heritabilities, that the two characteristics might be used as selection criteria in order to find high yielding robusta coffee clones which are able to be propagated by cuttings easily.

The highest general combining ability (GCA) of the two mentioned characteristics was belonged to Q 121 clone. The highest specific combining ability (SCA) of the percentage of rooted cuttings was performed by crossings of BP 409 X BP 42, Q 121 X BP 961 and BP 961 X BP 358. Crossings of BP 409 X BP 358 and BP 42 X Q 121 performed the highest SCA on total length roots.