

Correlation and Path Analysis Among Growth and Yield Components to Essential Oil Yield of Temulawak (*Curcuma xanthorrhiza* Roxb.)

Lukita Devy¹, Sobir² and Dodo R. Sastra¹

¹Agency for the Assessment and Application of Technology, Jakarta, Indonesia

²Bogor Agricultural University, Bogor, Indonesia

E-mail: lukita@webmail.bppt.go.id

Tel: +62-251-332943, Mobile: +62 813 1038 3033

ABSTRACT

One of the important products of temulawak (*Curcuma xanthorrhiza* Roxb.) is its essential oil yield. Information of interrelationship between vegetative traits, yield components traits, essential oil content and essential oil yield of temulawak will be useful for the breeding program efficacy. However, simple correlation analysis could not discuss the relationship clearly. Therefore, path analysis is needed to be done as a further analysis which can explain the direct and indirect effect of investigated traits to essential oil yield. The aim of this experiment is to identify the direct and indirect effect of vegetative, yield components traits and essential oil content to essential oil yield of temulawak. Fourteen accessions from Java and Sumatera were grown at Puspipstek Area, Serpong from December 2006 to August 2007. These accessions were planted in randomized complete block design. Data were analyzed by using simple correlation analysis and path analysis. Fourteen traits and essential oil yield were correlated by using simple regression. Eight traits (rhizome dry weight, plant height, leaf length, leaf width, leaf number, petiole length, fleshy root weight and rhizome fresh weight) were significantly correlated with essential oil yield. Therefore, these traits and essential oil content were used in path analysis and described 90.3% components that affected essential oil yield. Path analysis indicated that essential oil yield was directly affected by dry weight, leaf length and essential oil content. Therefore, indirect selection may be done at the field for high essential oil yield based on these traits.

Keywords: indirect selection, vegetative traits, yield components