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Khlong Khleung Khon (*Melastoma villosum* Lodd.) grows naturally in the East and Northeast of Thailand. Each population shows different characteristics depend on its habitat. Six populations were selected for biosystematic studies in an attempt to investigate the variations within and between populations to determine which population is an infraspecific or a different taxon by using numerical-taxonomic and isozyme-electrophoretic techniques.

Three multivariate analyses, namely factor analysis, discriminant analysis, and cluster analysis, were performed on 10 vegetative characters, and 13 reproductive characters. It was found that the variations within and between populations were insufficient to propose a new taxonomic unit.

The analysis of variance and discriminant analysis of pollen sizes revealed that there were slightly variations in these characters. Pollen sculptural study showed no difference on pollen morphology between populations.

Seed sizes and seed-coat morphology were analyzed. There were no any differences in seed sizes between populations as well as on seed-coat morphology which was colliculate, i.e. with rounded broad elevations closely spaced covering the seed-coat.

Six seedling-characters were analyzed by factor analysis and discriminant analysis. The results indicated that seedling of the population No.II was more vigorous than that of the other sites. However, the responsible factors for the vigorous seedling of the population No.II is not known at present.

The isozyme patterns of peroxidase and esterase isozyme systems were studied in all six populations. It was found that genetic variations within population were rather high. These may be due in part to the hybridization within and between populations by insects, which resulted in slightly different variations between populations.

On the whole, it can be concluded that the variations within and between populations of Khlong Khleung Khon are inadequate to distinguish any population as an infraspecific taxon or a new separated species.