Genetic Variation studies in Oryctes rhinoceros (L.) (Coleoptera:Scarabaeidae) from oil palm plantations using random amplified microsatellite (RAMs) markers.

Abstract

Randomly amplified microsatellite markers were used to study the genetic variation among six populations of Oryctes rhinoceros L. which were collected from oil palm plantations in Selangor, Perak, Pahang and Medan. Samples were collected using light and pheromone trapping for the purpose of obtaining two populations per site study. Thirty individual beetles per population were screened using seven randomly amplified microsatellite primers. Beetles were not attracted to light traps at Pahang and Medan. This resulted in only pheromone populations being caught there. Distances calculated based on the similarity coefficient of Nei and Li (1979) ranged between 0.422 and 0.736. Seventy eight reproducible loci were generated using the seven primers and all the loci were polymorphic. The dendrogram constructed produced two major clusters. Based on the dendrogram, the clusterings were observed to be influenced by preference to trapping system as well as geographical distance. The separation of clustering between Perak Pheromone (PP) and Perak Light (PL) is important as it gives rise to the possibility for the presence of two groups of O. rhinoceros based on their preference toward light and pheromone trap. However, further studies using codominant markers especially single locus DNA microsatellite markers are required to understand the population genetic structure and to further validate the presence of a cryptic species complex.

Keyword: Oryctes rhinoceros; RAMs; Genetic variation.