

Optimum sampling estimation using six quadrat selection technique in medicinal plants diversity assessment in a logged-over reserved forest, Jerantut, Pahang

ABSTRACT

Optimal sampling is to estimate the parameters of interest as accurately as possible under the constraint of budget and time. This study attempts to determine an optimal sampling technique for medicinal plant biodiversity assessment using six techniques in Tekai Tembeling Forest Reserve (TTFR), Jerantut, Pahang. Four one-hectare plots were established within the forest area between 340 a.s.l ó 520 a.s.l. Each plot divided into quadrat sized 10x10m. Analysis of six techniques quadrat selection were applied for each plot and the number of medicinal species collected, the diversity indices and the evenness indices were compared to the 100% inventory. Results showed that the highest number of species for six quadrat selection technique possessed by row technique (224), while 100% inventory recorded 236 species. The 75% random quadrat selection technique showed the highest diversity index estimated by Shannon (H'), 6.75 where the diversity index higher than 100% inventory. While, for evenness, Camargo index showed the 50% random technique quadrat selection technique possessed the highest value (0.4) which is higher than 100% inventory. The best technique suggested in this study was row quadrat selection technique which capture 224 medicinal species with $H' = 6.596$ and evenness index 0.366. MD, MSD and MSPD also computed from the data to evaluate which is the best technique. As a conclusion, row quadrat selection technique was the recommended technique as an alternative to the 100% inventory.

Keyword: Optimum sampling; Medicinal plant; Diversity; Logged-over forest