ABSTRACT

Oil palm (*Elaeis guineensis* Jack) is an annual plant cultivated as an oil producer that is widely used in various industrial sectors. Cultivation of oil palm for optimum results then formed a palm plantation. The problem that often occurs in oil palm cultivation activities is the presence of weeds. Comprehensive weed control measures can be carried out with weed inventory as the first step of control. This study aims to identify the types of weeds, analyze the dominance and diversity of weed vegetation and determine the differences in weed types in Immature Plants (TBM) and Mature Plants (TM) in Afdeling I PTPN IV Pabatu plantation. The method used in this research was descriptive method by analyzing descriptively for weed data and presented in tabular form. Weed sampling was done by purposive sampling with quadrant method using observation plots measuring 100 cm x 100 cm with a total of 9 plots on TBM and 9 plots on TM so that a total of 18 observation plots. The research results showed that in TBM and TM there were 12 families, 23 species and 1504 individual weeds. The dominant weed structures accompanied by NJD values found in TBM were *O. nodosa* 18.61, *K. monocephala* 17.01, and *C. rutidosperma* 15.26, while the dominant weed structures accompanied by NJD values found in TM were *L. aestuans* 18.71, *K. monocephala* 13.75, *O . hirtellus* 11.02, and *A. gangetica* 7.72. The similarity index (IS) calculation result was 35.71%, which means that the weed communities at the two research locations were low in similarity. Calculation of the diversity index (H') at TBM 2.08 and at TM 2.22 shows that at all observation locations the diversity of weed species was classified as moderate. The results of the Evenness Index (E) at TBM were 0.81 and at TM 0.82 which showed that at all observation locations the evenness of weed species present was relatively high.

Keywords: *Diversity, immature plants, mature plants, oil palm plantation, weeds*