ABSTRACT

One way to address the need for agricultural land is to use an indoor agricultural system. Agricultural systems in space require artificial light sources, one of which is LED lights. This study aims to determine the optimal intensity and lighting patterns for pakchoi growth. Pakchoi plants are planted in rooms of the same size and are given lighting from LED lamps of different intensities. The observation process was carried out for ± 15 days with data collection once a day. The planting process is carried out twice, namely the process of planting seeds using a 12 hour and 24 hour pattern. The variables observed were number and length of leaves and plant height. The results obtained are that, spaces with higher light intensity have better results. This is shown by the comparison of space with an intensity of 4,480 Lux which has an average plant height of 16.6 cm, leaf length of 8.5 cm, and number of leaves of 7 strands with a space of 440 Lux with an average plant height of 8.2 cm, leaf length of 3.7 cm, and the number of leaves 1 strand. From the research data it is proved that in the process of photosynthesis, intensity plays an important role in plant growth. In this study shown by the high intensity of light given to plants, the number of photons received by plants will be more and more. Photons received by plants act to excite the electrons present in plant chlorophyll, so the rate of photosynthesis in plants will be faster. The number and length of leaves also affect the rapid growth of plants, because the leaves are one of the main parts of photosynthesis.

Keywords : *light, pakchoi, LED lamp, photosynthesis, intensity*