

ABSTRACT

Plants have many benefits not only for the earth as an oxygen producer, but also beneficial for humans both from fruit, leaves, and stems also have benefits. Generally, plants are placed on the ground with potting media. Limited space to grow crops, there is an innovation called vertical garden or vertical garden. With the vertical garden can be a solution for farming.

With the use of full growth LEDs as a substitute for light at night, it analyzes the power and cost of full growth LED design and maximizes the growth of chili plants bhut jolokia and compares the growth of chili bhut jolokia that uses full growth LEDs with those that do not use full growth LEDs in terms of the number of leaves.

Using nine or 3 x 3 pots of easy grow bags for vertical garden. Plants are cultivated from seedlings to fruition using full growth LEDs controlled by microcontrollers and assisted by LDR light sensors.

Based on research that has been done that the design of full growth LED takes a amount of power of 2,124 kWh and Rp. 3,115 for 30 days or 1 month of use. And growth in plants that use full growth LEDs is faster than plant growth without the use of full growth LEDs. This result is evidenced by testing and analysis on the growth of chili leaves bhut jolokia with leaf growth that continues to increase every day.

Keywords: *Full Growth LED, Light sensor, Microcontroler, Vertical Garden.*