

Junelida Yothatip 2010: Study of Growing Indoor Plants using Artificial Light.
Master of Architecture (Building Innovation), Major Field: Building Innovation,
Department of Technology Building. Thesis Advisor: Associate Professor
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This research paper presents how to grow indoor plant without natural light by using artificial light without heat such as LED and Fluorescent lamps. Experiment was tested with vegetable crops, such as *Ocimum sanctum* L., *Ocimum basilicum* L., and *Ocimum americanum* L. by measuring growth from height, width of canopy, and numbers of leaves. The three variables are type of lights, light duration, and light intensity. The above mentioned variable provide different outcome making research results as follows:

According to test in searching of relation between type of lights and growth of plant, it was found that three plants grown in test box using LED lamp can survive longer and give better plant growth in term of canopy's width and leaves number than plant grown in test box using Fluorescent lamp. By comparison of relation between light duration and plant growth, it was found that three plants grown in test box with 12 hours duration live longest and give max plant growth in term of canopy's width and leaves number than plants 8 and 4 hours duration, respectively. Lastly, in searching of relation between different intensity and plant growth, it was found that three plants grown in test box with intensity at 1100 lumen can live longest and give maximum plant growth in term of canopy's width and leaves number than plant grown in test box with 900, 700 and 500 lumen, respectively.

Furthermore, *Ocimum sanctum* L., *Ocimum basilicum* L., and *Ocimum americanum* L. can grow and live with artificial light (LED and Fluorescent) depend on suitable distance between plant and lamp in order to sufficient light intensity for photosynthesis. For this research found that in case of the 700 lumen of light intensity, all of plants can survive when we set up LED or Fluorescent with 10 centimeter between lamp and plant canopy. However, the distance between lamp and plant also depends on the number of lamps.

Student's signature

Thesis Advisor's signature