

LED Plant Grow Lights



Plant Grow Light



- Background and Principles of Operation
- Facts and Figures
- Experimental Plant Growth

Background and principle of operation

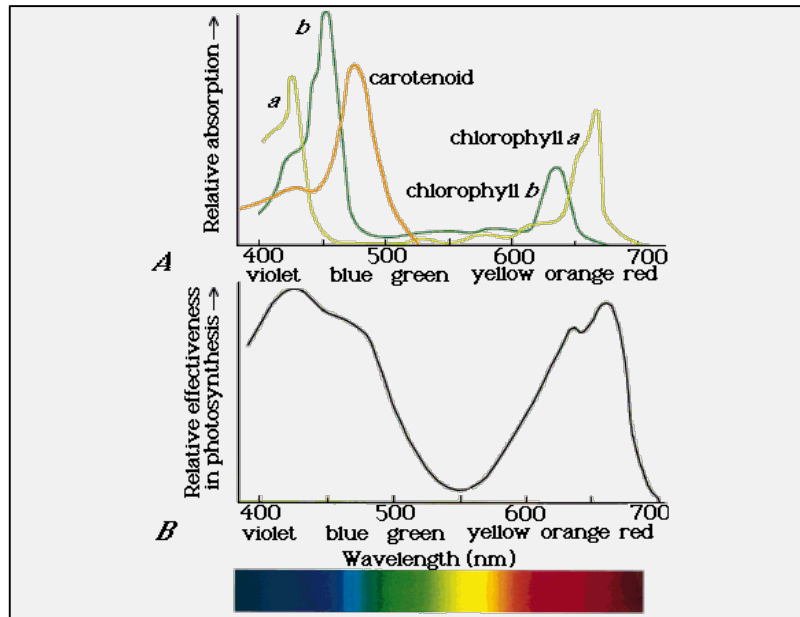
Plants utilize only part of the light spectrum for growth as we know. Chlorophylls, the plant cells that capture light for photosynthesis, primarily absorb red and blue light.

For this requirement,
the LED “**PLANT GROW LIGHT**” was developed.

The light of the LED “**PLANT-GROW LIGHT**”
increases
chlorophyll A, chlorophyll B, and Beta-carotene,
and functioning as daylight replacement and growth
stimulation.

Facts and Figures

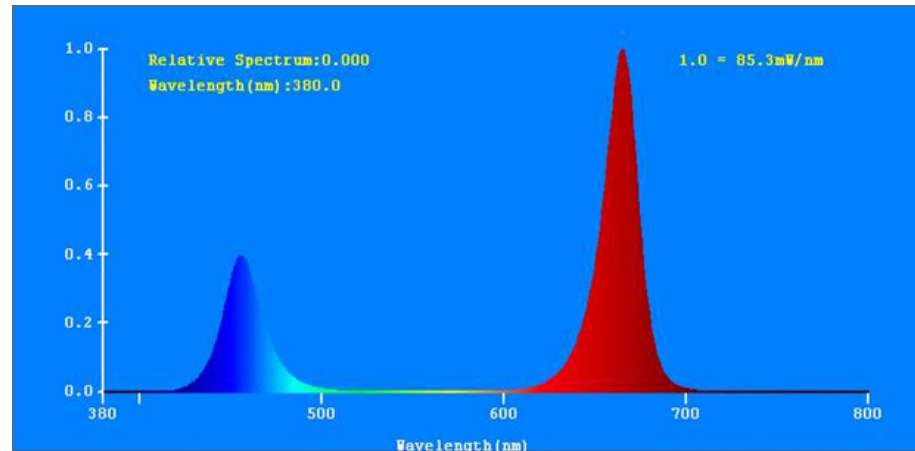
Spectrum of light required for plant growth



Red (Wavelength 660 nm)

Blue (Wavelength 450 nm)

Wavelength DeLUX plant



Facts and Figures

LED Grow Light Information

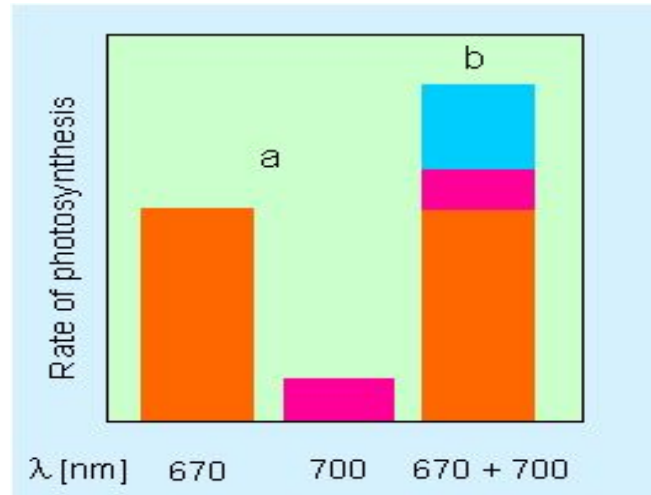
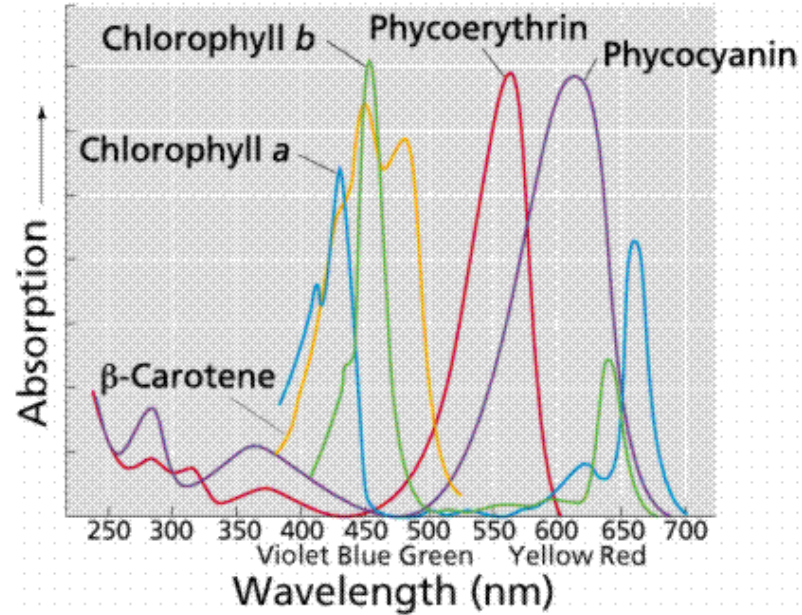
Many plant pigments have dual wavelength peaks that can be activated with following led light combinations:

Beta-carotene 450nm 480-485nm dual peak
chlorophyll a 430nm 662nm dual peak
chlorophyll b 453nm 642nm dual peak
phycoerythrin 590nm single peak
phycocyanin 625nm single peak

670nm and 700nm for the **Emerson effect**

Note: The rate of photosynthesis after exposition to light of the wave length $\lambda = 670$ nm and $\lambda = 700$ nm, respectively. When simultaneously exposed to light of both wave lengths, the rate of photosynthesis increased

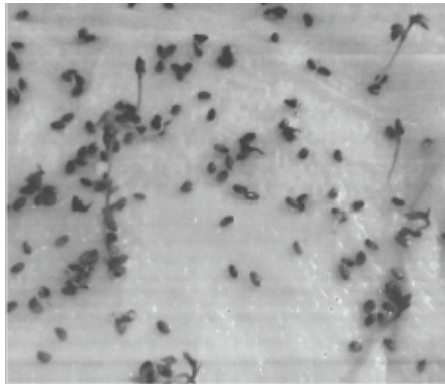
https://en.wikipedia.org/wiki/Emerson_effect
<http://www.theweedblog.com/exploring-the-emerson-effect-for-indoor-marijuana-growing/>



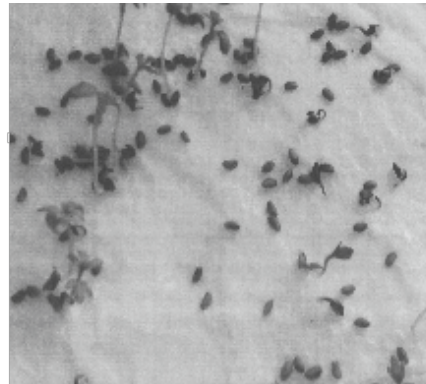
Facts and Figures

Experimental plant comparison growth testing – GERMANY 2013

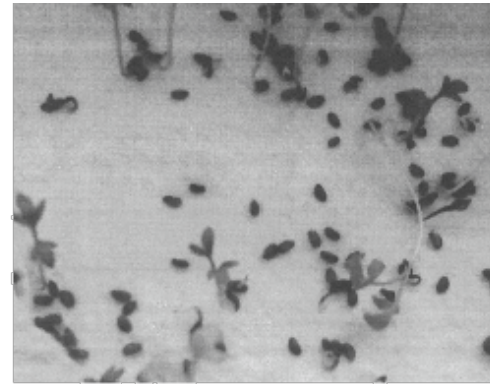
06/06/13 – Day light (Windows)



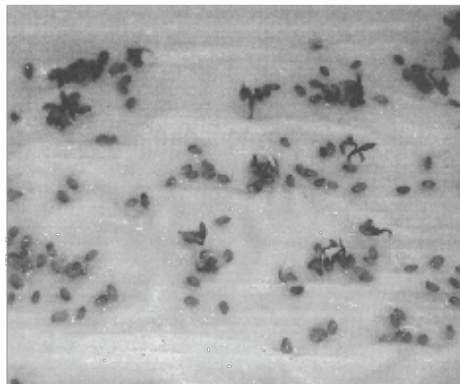
06/08/13 – Day light (Windows)



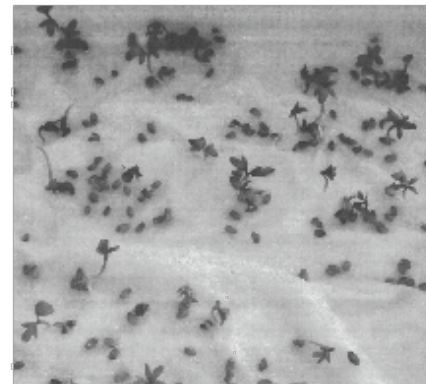
06/10/13 – Day light (Windows)



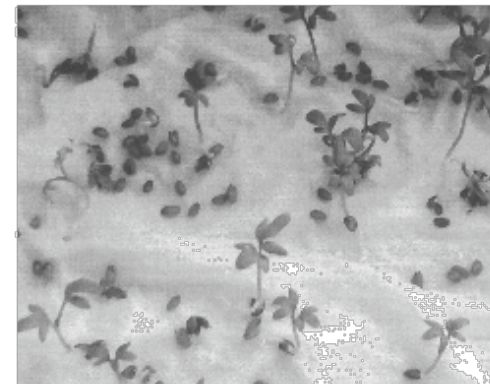
06/06/13 – LED “PLANT-GROW LIGHT”



06/08/13 – LED “PLANT-GROW LIGHT”



06/08/13 – LED “PLANT-GROW LIGHT”



As you can see, comparing the pictures above, the plants that received light from the LED “PLANT-GROW LIGHT” show increased growth compared to the plants receiving only normal day light.