

The Optimum Usage of Different Light Spectrum in Agriculture

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Plants need a persistent energy source for growth and they receive it from light. Light influences on plants' "physiological, morphological, and biochemical" properties with its three aspects "intensity, quality and length of radiation". Light is not the only source of photosynthesis but is the important and influential signal of the growth stages of plants from germination to flowering. Responses of plants to the light in the growth environment to the function of photosynthetic pigments are different with the function of other pigments in the presence of different light spectrums. Nowadays, grow light is recommended in production of greenhouse plants in order to create favorable growth conditions for products. Recently, light emitting diodes called, LED, have been proposed to optimize light dependent processes in plant products due to their benefits such as longer lifetimes than other bulbs, generating special wavelengths, low energy consumption, and the ability to adjust the intensity and quality of the light for different types of plants. The present study was conducted by Saleh research Group to evaluate the effects of different optical treatments on different growth processes of different plants.

In this article we will present the result as follows:

1. For the flowering process, white fluorescent composition is suitable.
2. For the fruit process in greenhouses; combination of yellow, white and red lights is suitable.
3. For vegetative growth when the focus is on the growth of the plant leafs and stems, using yellow light is proposed.
4. For ornamental plants growth, yellow light is preferred.
5. For growing of plants that their roots are used, combination of yellow and white light is suitable.
6. For breeding and growing of beans, yellow light is suitable.