

---

Vol. 10 (4): 697-704 (2020)

## CONTROL OF DIFFERENT LIGHT QUALITIES ON GERMINATION OF MUSTARD (*Brassica juncea*) SEEDS AND DE-ETIOLATION OF MUNG BEAN SEEDLINGS

King Dave Gloria Martin<sup>1</sup>, Krystal Grace Vergara Padilla<sup>1\*</sup>, Darwin U. Ong<sup>1</sup>

<sup>1</sup>College of Arts and Sciences, Nueva Ecija University of Science and Technology, Cabanatuan City, Nueva Ecija, 3100, Philippines;

Corresponding Author Krystal Grace Vergara Padilla, e-mail: [krystelpadilla27@gmail.com](mailto:krystelpadilla27@gmail.com);

Received September 2020; Accepted October 2020; Published November 2020;

DOI: <https://doi.org/10.31407/ijeess10.418>

### ABSTRACT

Light regulates a wide array of developmental process in plants, two of these processes are seed germination and chlorophyll development. The effect of different light qualities to the germination of Mustard seeds was observed. In addition, observation of chloroplast development was done. After 48 hours of treatment, germination was highest in white LED light and germination was significantly high to seeds exposed blue and red. Absence of light greatly affected the sprouting of seeds with only 42.22 percent germination success. Development of chloroplast was observed in seedling after two hours of exposure in white LED which is comparable to the result obtained in natural light. Chloroplasts did not develop in the seedling exposed to blue light, but chloroplast developed in the plant treated with red light. This suggests that red light predominantly regulates chloroplast differentiation but still the presence blue light is needed supported by the result obtained in treatment of white light. Taken in together, both red and blue lights are essential in promoting germination and chlorophyll development. Moreover, white LED could be used as an alternative source of light in aiming to increase germination of Mustard seeds and induce chlorophyll development.

**Key words:** LED, etiolation, chlorophyll, Mustard seeds, germination