Innovative Farming of Edible Microgreens Indoors

Cha, Yee Hern (School: Heng Ee High School)
Chan, Dong Tze (School: Heng Ee High School)

COVID-19 pandemic is life-threatening. We need to boost our body's immunity against infection. Literature review shows that microgreens can provide nine times more vitamins and minerals than vegetables. Microgreens are the young and tender leafy greens that sprout from seeds after 7 to 14 days. We can easily produce microgreens in small containers indoors. This project is to study three factors to increase microgreens' production. Five types of pea seeds (Green pea, Yellow pea, Maple pea, Marrowfat pea and Dun pea) were separately grown hydroponically in 10 cm x 10 cm trays. Three experiments were carried out. They are to determine optimum seed density on growing trays, to investigate the effects of ultraviolet (UV) treatment on seed germination and to obtain the suitable range of light intensity to increase microgreens' production. The results showed that the optimum seed density to produce pea microgreens is 80±5 seeds per 100 cm2 growing space. UV treatment of pea seeds during germination can reduce the average harvest time by 1 to 2 days for different types of peas. The mass of microgreens harvested increased by 10.93% (Green pea), 13.81% (Yellow pea), 11.33% (Maple pea), 12.28% (Marrowfat pea) and 12.57% (Dun pea) for UV treated pea seeds during germination. The light intensity required to produce a higher mass of microgreens for Marrowfat pea is between 1600 to 2150 lux. In conclusion, optimum seed density, UV treatment during germination, and appropriate light intensity are important factors to increase pea microgreens' production within a limited space to benefit our community.

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