

Evaluation of Phenomenological Variables by Applying Compost and Digestate to Different Concentrations in Lettuce Cultivation (*Lactuca Sativa*L.)

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Increase in world population has caused an increasing demand for food, especially those of vegetable origin. Consequently, to meet this demand, farmers have used agrochemicals to improve crop yields. The objective of this work was to evaluate the growth of lettuce (*Lactuca sativa* L.) in response to the application of two types of organic fertilizers: compost and digestate, each of them obtained from organicwaste and cowdung; respectively. Plants with untreated soil were grown as a negative control, while plants grown in the presence of a chemicalfertilizer (NPK 17-17-17) were established as positive controls. In the case of plants treated with compost, concentrations of 20%, 40%, 50%, 60% and 100% were used; while for digestate they were 20%, 40%, 60% and 80% with frequencies of 15 and 30 days. The height of the plant, fresh weight, leaf area and root were measured. The experiments showed that the best compost treatment was the 100% application, in which the height of the plants was 52% higher and the fresh weights even times higher than the negative control. The Best digestate treatment was at a concentration of 80% and a watering frequency of 15 days. In the latter case, the height of the plants and fresh weightwas 65% and 89% greater tan the negative control. In summary, it is possible to improve the growth of lettuce by applying compost or digestate; however, more experiments are needed to find the right combination.

Biography:

Jeisel Delgado Flores is a master's student in the area of Applied Biotechnology at CIBA-IPN, Mexico. She is an engineer in food industries graduated from the InstitutoTecnológico del Altiplano (ITAT), Tlaxcala, México. She has experience in training people from rural communities, to process fruits and vegetables, dairy products and meat as an alternative to food preservation. She also has work as a researcher in conjunction with ITAT to find option to water treatment contaminated with heavy metals. Currently, her research work focuses on the development of a biofertilizer applicable to crops for human consumption.