

The effect of vermicompost on the growth and quality of basil

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Introduction

Vermicompost is the excreta of earthworm, which are capable of improving soil health and nutrient status. Vermiculture is a process by which all types of biodegradable wastes such as farm wastes, kitchen wastes, market wastes, bio-wastes of agro based industries, live-stock wastes etc. are converted while passing through the worm-gut to nutrient rich vermicompost. The aim was to find suitable substrate to grow basil.

Materials and methods

The experiments were carried through in company K. Compos glassgreenhouses in Estonia from December 2015 to February 2016. In present investigations green basil variety 'Genovese' was grown. The seeds in first experiment were sown on 5 December 2015 and plants harvested together with registration of growth results on 3 January 2016. In the second experiment the seeds were sown on 7 of January 2016 and plants harvested and results notified on 2 of February 2016.

Treatments were followed (Company K. Compos do not want to give accurate recipes as it remains their property right):

1. 30% vermicompost, peat, sand and if needed dolomite stone
2. 25% vermicompost, peat, gravel, perlite.
3. 25% vermicompost, peat, gravel, concrete block.
4. Growth substrate bought from a shop in Estonia (seller did not allow to usage the name of the brand).
5. 20% vermicompost and organic matter rich claysoil.

In the end of experiment on basil the height of shoots, length of roots and number of leaves were measured.

The contents of nitrogen, phosphorus, potassium, calcium and magnesium were determined.

Analyses of variance were carried out on the data obtained using Excel. In order to make results more clear to understand in the results section first experiment data are given, as the second experiment gave similar results.

Results

Growth parameters of basil

The length of shoots was lowest in treatment 5 compared to all other treatments. The length of roots is lowest in treatment 5 compared to all other treatments. The length of shoots was lowest in treatment 5 compared to all other treatments. The highest number of leaves was in treatments 1 and 2. Basil growth parameters are showing that best growth substrates to grow this plant are treatments 1 and 2.

Nutrient content in basil

The content of Nitrogen was lowest in treatment 2 compared to all other treatments. The content of Phosphorus in basil dry matter was not statistically different. The content of Potassium was highest in treatments 1 and 3, lowest in treatment 5 compared to all other treatments. The content of Calcium was lowest in treatments 1 and 2. The Calcium content was highest in treatments 4 and 5. The content of Magnesium was lowest in treatment 2. The Magnesium content was highest in treatments 3 and 5. The nutrient content of basil plants shows that best suitable growth substrate is treatment 3.

Conclusion

It can be summarized that for basil the best growth substrate, regarding growth parameters and nutrient content, is treatment 3: 25% vermicompost, peat, gravel, concrete block.