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Determination of Compost Quality in a Lettucce Crop in the Sabana de Bogotá, Colombia

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Abstract

Compost and organic fertilisers are used as alternative for environmental organic waste impact and its use are increased in agriculture in last years, specially in development countries. In Colombia S.A, The Colombian Technical Standar, NTC 5167/04, includes the requirements and tests that must be done to products that are going to be used as organic or mix fertilisers. In this document, they highlight physical, chemical and microbiological quality of fertilisers for guarantee an excellent quality of final product. In the present study, was determined the quality of animal and vegetal compost and its effect on the quality of a lettuce crop in the Sabana de Bogotá, Colombia. The samples was taked at the begining of the soil preparation and at the end of the lettuce (*Lactuca sativa* var. crispa) production. Samples of soil, compost and final product (lettuce) were taken. Compost and lettuces plants were randomly selected for each experimental treatment(10 t ha^{-1}:control; 30 t ha^{-1} compost: T1 outdoors and idoors greenhouse conditions). Presence of *Salmonella* spp. and *Escherichia coli* (as an indicator of fecal contamination) by MPN was evaluated. As agronomical variables, was determined weight, NO_3 contents and heavy metalsof final product (plant) and %OM in soil, mineralised N and P, and microelements in soil. As results under site conditions, was not found significant differences ($p > 0.05$) between treatments regarding chemical, physical and microbiological quality. The inability to obtain differences is due to high levels of chemical fertiliser applied, which mask any effect of the application of compost, but was founded high concentration of NO_3 in plant. Metabolized N, *i.e.* organic N in the tissues, represented about 80 % which is good, however, in absolute terms would be a risk according to consume excess nitrate in lettuce, which represents between 2 and 16 % of the total N in different treatments.

Keywords: Compost quality, lettuce

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