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CHARACTERIZATION AND INVESTIGATION OF CHICKEN LITTER AS A SOURCE OF PHOSPHORUS FOR FERTILIZER

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Abstract

Chicken production has been growing in Brazil due to population growth and consequently the waste generated in this process, namely chicken litter, has also increased. Currently, the main destination of chicken litter is its application to the soil in areas near to the chicken production units. The objective of this work was to characterize the chicken litter produced in the Brazilian Midwest using different techniques, in order to diversify the application of this residue and minimize the environmental impacts generated by chicken meat production. Chicken litter characterization was performed by analyses of particle size distribution, moisture content, pH, water activity, proximate composition, total nitrogen, protein and non-protein nitrogen, and pyrolysis and thermogravimetric analysis. In addition, a greenhouse experiment was carried out to evaluate the agronomic efficiency of chicken litter compared to mineral fertilizer. Mass balance of chicken litter pyrolysis showed that it kept 50% solid mass and the first most significant mass loss of chicken litter occurs between 250 and 350 ° C from the thermogravimetric analysis. Chicken litter was less efficient than mineral fertilizer. However, the great improvement in shoot dry matter yield compared to control showed the potentiality of this residue as a nutrient source when properly used.

Keywords: nutrient resource, organic fertilizer, plant nutrition, poultry waste

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