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Use of Biowastes and Composts as Part of the Circular Economy Applied to the Agricultural Systems: Current and Future Research

Carmo Horta

Polytechnic Institute of Castelo Branco, Portugal, School of Agriculture.

carmoh@ipcb.pt

<https://orcid.org/0000-0003-0101-1599>

Abstract

The current need of saving natural resources such as fossil fuels (energy savings) and phosphate rocks deposits (mineral fertilizers savings) makes the agricultural use of biowastes an important contribution to the goals of the bioeconomy. The biowastes that have been common used in the soil fertilization are mainly from livestock facilities such as manures and slurries or from agroindustry effluents. However, the agricultural use of these organic amendments has not only several advantages, regarding the improvement of soil properties and the increase of crop growth but also some disadvantages, such as their variable physical-chemical composition, imbalance between the nutrients regarding the crop needs or the microbiological contamination. So, there are an increasing interest to compost the biowastes, adding economic value to them and getting a marketable fertilizing material with a well-known physical-chemical composition. Another approach to increase value to the biowastes is their anaerobic co-digestion which allows the production of biomethane and digestate with fertilizing value. Another newer methodology is the extraction of nutrients from the livestock or agroindustry effluents by chemical procedures, getting a biobased fertilizer. This seminar will provide results of the research done about this topic in the Polytechnic Institute of Castelo Branco, Portugal/School of Agriculture.