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Res2ValHUM: Creation of Resource Management Tool and Microbial Consortia Isolation and Identification

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Abstract : Res2ValHUM project involves institutions from the Spanish Autonomous Region of Galicia and the north of Portugal (districts of Porto and Braga) and has as overall objectives of promotion of composting as an process for the correct managing of organic waste, valorization of compost in different fields or applications for the constitution of products with high added value, reducing of raw materials losses, and reduction of the amount of waste throw in landfills. Three main actions were designed to achieve the objectives: development of a management tool to improve collection and residue channeling for composting, sensibilization of the population for composting and characterization of the chemical and biological properties of compost and humic and fulvic substances to envisage high-value applications of compost. Here we present the cooperative activity of Galician and northern Portuguese institutions to valorize organic waste in both regions with common socio-economic characteristics and residue management problems. Results from the creation of the resource manage tool proved the existence of a large number of agricultural wastes that could be valorized. In the North of Portugal, the wastes from maize, oats, potato, apple, grape pomace, rye, and olive pomace can be highlighted. In the Autonomous Region of Galicia the wastes from maize, wheat, potato, apple, and chestnuts can be emphasized. Regarding the isolation and identification of microbial consortia from compost samples, results proved microorganisms belong mainly to the genus Bacillus spp. Among all the species identified in compost samples, Bacillus licheniformis can be highlighted in the production of humic and fulvic acids.

Keywords : agricultural wastes, Bacillus licheniformis, Bacillus spp., humic-acids, fulvic-acids
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