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Assessment of microbial pools by an innovative microbiological technique during the co-composting of olive mill by-products

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Author(s)

Teresa Casacchia, Pietro Toscano, Adriano Sofo, Enzo Perri

ABSTRACT

Different mixtures of olive pomace (OP), olive mill wastewater (OMWW) and olive pruning residues (OPR) were aerobically co-composted under natural conditions. Compost temperature showed a sharp increase in the first 40-60 days, followed by a stabilization at 60° C and a decline after 150 days, whereas compost water content ranged from 50-55% to 25-30%. Total and selective microbial counts were followed throughout the experiment by means of innovative (IMT) and conventional (CMT) microbiological techniques. *Pseudomonas* spp., anaerobic bacteria, actino-mycetes, and fungi reached levels of 8, 7, 5 and 6 log CFU g⁻¹ compost, respectively, with a slight depression after 30-80 days. Total and fecal coliforms strongly decreased during the composting process. The use of IMT allowed to detect a higher and more stable growth of micro-organisms if compared to CMT. IMT was demonstrated to be an appropriate and reliable method for monitoring the microbial pools during the co-composting process.

KEYWORDS

Composting; Olive Mill Wastewater; Olive Pomace; Pruning Residues

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