



Addition of wood ash to biowaste composts - A potential risk or a benefit?

M. Fernández-Delgado Juárez , A. Knapp , M. Gómez-Brandón, H. Insam

Institute of Microbiology - Leopold Franzens Universität Innsbruck





Objective

To evaluate the use of wood ash amendment on a full-scale biowaste composting process

How do increasing amounts of wood ash affect the development of the process and the quality of the end product?



Experimental Design

Full-scale composting trial with different wood ash concentrations (w/w)



**Municipal biowaste
+
Green waste
+
Wood ash**

**K0 (Control)
K3 (3%)
K6 (6%)
K9 (9%)
K12 (12%)
K15 (15%)**



Wood ash characterisation

Elements	Wood ash	KVO 2001	Elements	Wood ash	KVO 2001
As	4.3	20	Ni	25	100
Cd	2.3	8	Pb	11	100
Cr	45	250	V	22	100
Co	6.4	100	Zn	330	1500
Cu	71	250	Ca	160000	
Mo	< 2.0	20	Mg	27000	

Values in mg/kg db



Material and methods

- Gas (CH_4 , CO_2 , O_2) and temperature measurements
- Composite sample once a week (7 weeks)
- pH , EC, nitrate, ammonium, VOS
- Repeated measures ANOVA (ANOVAR)





Material and methods

- After 7 week of composting time → sieved $\phi < 10$ mm
- Maturity tests (Dewar method)
- Chemical parameters (pH, EC, C_{tot} , N_{tot} , NO_3^- , NH_4^+ , VOS)
- Toxicity test (*Lepidum sativum*)
- K6 and K12 → field trial
- ANOVA





Conclusions

- Wood ash addition did not inhibit composting process
- Wood ash amended lead to an early rise of the composting temperature
- Wood ash addition to biowaste compost enhanced N mineralisation



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