

Decomposition of ¹⁴C-labeled glucose, plant and microbial products and phenols in volcanic ash-derived soils of Chile

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During 4 months from 70 to 79% of the carbon of added glucose, cellulose, and *Leuconostoc dextranicus* polysaccharide had evolved as CO₂ from normal agricultural soils of Chile and California. The presence or additions of allophanic material reduced losses of glucose C by about 25% and of the C of the polysaccharides by 36-65%. From wheat straw, the polysaccharide fraction of wheat straw, and protein, C losses were 60, 78 and 67%, respectively, in the normal soils. Reductions related to allophane were about 41-67%. For a number of microbial cells, C loss reductions due to allophanic materials ranged from 31 to 55%. Carbon losses from catechol and ferulic acid were more related to reactivities of the phenols, the soil pH, and the organic matter content of the soil than to the presence or absence of allophanic material. © 1982.