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Soil microbial activity and hydrolase activities during decomposition of model root exudates released by a model root surface

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We have studied the stimulatory effects of different model root exudates (MRE) (glucose, glutamic acid, citric acid, oxalic acid) released by a model root surface (MRS) on microbial activity and hydrolase activities in the rhizosphere of an agricultural and forest soil in an incubation unit simulating the rhizosphere soil. All MREs stimulated the soil respiration. Microbial biomass increased differently in the rhizosphere layers of the two soils, whereas no significant increase was generally observed in the model bulk soil. Significant stimulation of phosphatase and urease activity was observed in the rhizosphere of both agricultural and forest soil whereas no response to MREs release was observed for the protease activity. However, the response of the measured hydrolase activities was different depending on the MRE released and soil type.