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Effects of decomposition of leaves from tropical plants with allelopathic potential on the growth of weeds and soil
microorganisms

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47	Plant Interactions with Other Organisms

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Allelopathy, as part of Chemical Ecology discipline, studies the plant-plant and plant-microorganism interactions mediated by several secondary metabolites released to the environment from the donor plant. These secondary metabolites or allelochemicals have different effects on the growth of plants and microorganisms. They stimulate or inhibit, acting directly on some essential biological processes (respiration, photosynthesis, membrane permeability, cellular division, and protein synthesis) or indirectly on soil microorganisms, interfering with the establishment of some bacterial-plant or fungi-plant symbiosis. The present study is focused on the decomposition of leaves of three tropical trees with allelopathic potential (*Zuelania guidonia*, *Jatropha gaudieri* and *Sebastiania* sp.) on the growth of two crops: bean and tomato. Dried-leaves of these trees were added to the soil of pots in a greenhouse experiment. The parameters measured were: 1) The presence of weeds in the soil with the different treatments, 2) the establishment of mycorrhizal fungi in the roots of both crops, and 3) the formation of *Rhizobium* nodules on bean roots. The statistical analysis showed that the three types of leaves incorporated to the soil significantly decreased the number of monocotyledonous weeds. But, they did not affect the number of dicotyledonous, the growth of both crop plants, and the mycorrhizal colonization in bean roots. Decomposition of leaves in soil stimulated both, the mycorrhizal colonization on tomato roots and the establishment of *Rhizobium* on bean roots.

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