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Abstract Book

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IPM2 P9. Bioremediation of hexachlorocyclohexanes (HCHs)-contaminated soil using charcoal enriched with a constructed bacterial consortium

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The technical hexachlorocyclohexane (t-HCH), a popular and broad-spectrum organochlorine insecticide prior to the 1990s, mainly consists of the α-, β-, γ- and δ- isomers. The use of t-HCH has now been banned in many countries because of its toxicity and long persistence in environment, but numerous contaminated sites are still present throughout the world. In this study, we demonstrated effectiveness of charcoal enriched with a constructed bacterial consortium in HCHs-contaminated soil. At first, we enriched HCHs-degrading bacteria, *Sphingomonas* sp. TSK-1, together with hexachlorobenzene (HCB)-degrading one, *Nocardioides* sp. PD653, in a special charcoal, CC150 (BET surface area 150 m²/g, pH 7.8) by immersing the charcoal in the mixed two cultures overnight. TSK-1 could completely dechlorinate α-, γ- and δ-HCH. For β-HCH, however, only two chloride ions per molecule were released. On the other hand, PD653 could completely dechlorinate only β-HCH among 4 isomers. To evaluate the enriched charcoal, 3g (MC:50%) of the material was mixed with 43g of wet soil (MC:30%), which was contaminated with 36.3 mg/kg of α-HCH, 13.6 mg/kg of β-HCH, 10.8 mg/kg of γ-HCH and 10.9 mg/kg of δ-HCH, and was incubated at 25°C under dark conditions with water supply (1-2 ml/week) for 2 weeks. The degradation rates were 67.1, 18.5, 76.1, 34.6 % for α-, β-, γ- and δ-isomers, respectively, and totally 55% of HCHs were degraded in comparison with the control plot (non-enriched charcoal). This is the first report to clean up HCHs-contaminated soil by the charcoal enriched with a constructed bacterial consortium

IPM2 P10. Control of stem rot of rice in different rice rotations

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The production of rice in Uruguay changed in the last years from lax rotations with pastures to more intensive systems with more rice or the incorporation of other crops in the rotation. Rice intensification can affect the dynamic of pathogens present causing changes in the development of diseases. Stem rot is an important disease of rice in intensified systems as this pathogen (*Nakataea oryzae*) produce sclerotia. These sclerotia survive for years in rice soils. Since 2012, a long-term experiment was installed to study different rice rotations in productive and environmental terms. Major interest is on the development and management of rice diseases. For two years, an experiment was carried out to study possible practices of chemical control in rotations with different percentage of rice in the cycle. Treatments consisted in a fungicide spray, fungicide combined with a copper phosphite and an unsprayed tester. The treatments were installed in an experiment with a history of rice-pasture rotation with the crop sequences: 1) continuous rice (7 years of rice), 2) short paddy-rice (second year of rice), and 3) short-paddy-soybean-rice-pasture (first year of rice after soybean and pasture). Incidence and severity of stem rot was evaluated before harvest. The results indicate that significant differences were found in incidence and severity according to year and rotation. Incidence and severity were higher in continuous rice, and then in second year rice. Chemical control reduced severity of stem rot in continuous rice independently of the year but was variable in the less intensified systems