Development of bioherbicides for rice weeds in Vietnam

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The two major grass weeds of rice in Vietnam, Leptochloa chinensis in the Mekong Delta and Echinochloa crus-galli in the Red River Delta, are targets for bioherbicides being developed in an Australian Centre for International Agricultural Research-funded project. The project has now entered the field evaluation phase. In the Mekong Delta, the fungus Setosphaeria rostrata has proven effective in controlling L. chinensis in repeated field experiments. Techniques for mass production of the fungus are currently being investigated. In the Red River Delta, the fungus Exserohilum monoceras, although promising in screen house experiments on E. crus-galli, has not been as successful in field experiments. The same fungus has proven effective in the field in Japan. Reasons for the reduced effectiveness of the fungus under field conditions in Vietnam are discussed and further experiments are suggested.

Potential of the petiole-galling weevil, Coelocephalapion camarae, to markedly improve biocontrol of Lantana camara

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Biocontrol of Lantana camara L. is hampered in some areas by the leafless condition that the plant periodically experiences in response to frost, drought or cold, dry winters. One aspect of the South African strategy against this noxious weed is therefore to select candidate biocontrol agents that have the potential to bridge periods of leaflessness. An apionine, recently described as Coelocephalapion camarae Kissinger (Coleoptera: Brentidae), was collected from L. urticifolia in Mexico and evaluated in quarantine. The small, robust adults of this weevil are long-lived and may be able to bridge periods of leaflessness. The adults chew shot-holes into the leaves and the female inserts an egg into a suitable petiole, where the larva emerges and mines the vascular tissue, inducing gall formation. This disrupts translocation of photosynthates to the roots, and at sufficient galling levels, causes root growth to cease. The oviposition requirements of the female reduce the potential for non-target impact, as only few, related, indigenous plants proved suitable, but inferior, for larval development. Few provided suitable oviposition sites. Different varieties of L. camara naturalized in South Africa proved equally suitable for oviposition preference and development. Due to the high impact and potential to sustain population levels during leafless periods, C. camarae is expected to establish throughout South Africa and markedly improve the success of lantana biocontrol.