The development of mycoherbicides for an invasive shrub, *Hakea sericea*, and a tree, *Acacia mearnsii*, in South Africa

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Both *Hakea sericea* and *Acacia mearnsii* are important, invasive plants in South Africa. The suppression of *H. sericea* seedlings on the mountains of the Western Cape Province, using a strain of the fungus *Colletotrichum gloeosporioides*, resulted in a partnership between the chemical company, Sentrachem, and the Plant Protection Research Institute (PPRI). This led to the production of a granular formulation of the fungus, provisional registration and large-scale field trials. The limited market, however, led to the withdrawal of Sentrachem support. Small quantities of the fungus are now supplied by the PPRI, annually, to landowners for the control of adult *H. sericea* plants. Two fungi are being reseached for the control of *A. mearnsii*. *Ceratocystis* sp. causes wilt and death of the trees. Although effective, a labour-intensive inoculation technique and the limited season for effective application constrains the practical use of this fungus. The second fungus, *Cylindrobasidium laeve*, is showing promise as a stump-treatment to prevent resprouting of felled trees. Techniques for limited mass-production and formulation of the fungus are being developed and it is envisaged that the fungus will be produced and marketed by PPRI.

Update on the present status and the future prospects of BioMal

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Colletotrichum gloeosporioides f.sp. *malvae* was registered as the first bioherbicide in Canada, during February 1992, under the name BioMal. When Philom Bios Inc, Saskatoon, Saskatchewan applied for registration of BioMal, no guidelines for bioherbicides existed in Canada. Therefore the testing protocols developed for this fungus played a significant role in the development of Canadian registration guidelines for microbial pest control agents. *Colletotrichum gloeosporioides* f.sp. *malvae* was effective as a bioherbicide for control of round-leaved mallow (*Malva pusilla*), when applied, post-emergence, as a spore suspension. However, Philom Bios found that production of spores on a large-scale and drying of the product to provide a sufficient shelf-life was not economically viable. A second evaluation of market potential for BioMal suggested that sales would be much lower than first anticipated. Therefore, a corporate decision was made in late 1994 not to pursue commercialization of BioMal. The agreement between Agriculture and Agri-Food Canada and Philom Bios will be cancelled. The future of BioMal is uncertain. However, *Colletotrichum gloeosporioides* f.sp. *malvae* can effectively control round-leaved mallow in small-fruit and vegetable crops. Agriculture and Agri-Food Canada is presently looking at this potential market and will be seeking new commercial partners.