

Australia's first bioherbicide approaching release

August 14 2012

A simple one-dose pill could help end the scourge of woody weeds that are choking Australia's waterways, smothering native vegetation and robbing our farmers of agricultural land.

Australia's first 'home-grown' commercial bioherbicide, being developed by The University of Queensland's (UQ) Associate Professor in plant pathology, Dr Victor Galea, involves inserting a single gelatine capsule containing pathogenic [fungi](#) into the trunk of the perennial weed and then letting the fungi do the rest.

Weeds cost the Australian economy \$4 billion and Queensland \$600 million every year in lost agricultural production.

This new biological agent, which utilises native Australian fungi, promises to be a sustainable and long-term solution for invasive woody weeds such as Parkinsonia, Prickly Acacia, Mimosa and Athel Pine. The first bioherbicide to be developed will be for Parkinsonia, which has spread across Queensland, the NT and northern WA and costs \$60 million per annum in chemicals to control.

The fungi used in the bioherbicide being developed for Parkinsonia were isolated by Dr Galea in 2004 from Parkinsonia plants that were experiencing naturally occurring dieback in the Northern Territory.

“Northern Territory Landcare Officer Colleen Westover noticed some Parkinsonia trees were dying and sent me samples to see if I could find

out what was causing their deaths,” Dr Galea said.

“From this grew a broader project to collect specimens from across northern Australia to create our isolate bank. We isolated 200 local fungi and have further distilled this down to three strains that are most effective at causing Parkinsonia dieback.

“The fungi are found naturally throughout Australian soils and even in healthy looking Parkinsonia, which means we have avoided biosecurity risks from importing new organisms into Australia from overseas.”

Dr Galea and his team from UQ's School of Agriculture and Food Sciences have developed a novel method to introduce the fungi into the plant in a mega-dose that causes the tree to die within six months to two years.

“We have tested and refined a simple system with capsules containing millet that has been colonised by the fungus and is all packaged up and ready to go,” Dr Galea said.

“We simply drill a hole in the tree trunk, insert the capsule and then seal the hole with silicone, although a mechanised delivery system is currently being considered.”

“Parkinsonia creates a very large seed bank, which makes its control with chemical herbicides or manual removal ineffective because new plants pop-up for years afterwards.

“But with our fungal bioherbicide, once it is established in the trees it has the potential to remain in the soil and kill germinating seeds that come up after the adult tree is gone.

“We have also found evidence of lateral spread of the fungus to adjacent

untreated trees via the plants' roots, which means that for thick clumps of Parkinsonia we may only need to inoculate one in five trees.”

Meat & Livestock Australia has supported the research and a number of trial sites and workshops across Queensland.

The technology has been licensed to BioHerbicides Australia Pty Ltd (BHA), a start-up company established by UQ's main research commercialisation company, UniQuest and a private partner, in 2010.

The commercial release of the bioherbicide for Parkinsonia is a step closer with new support from a \$451,775 Commercialisation Australia grant awarded to BHA which will assist with registration, manufacturing and marketing activities.

Registration of [Australia](#)'s first bioherbicide Di-Bak Parkinsonia and the production of pilot batches are expected in 2013.

Provided by University of Queensland

Citation: Australia's first bioherbicide approaching release (2012, August 14) retrieved 23 April 2024 from <https://phys.org/news/2012-08-australia-bioherbicide-approaching.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.