Poster 67

An ecological role for *Phytophthora* taxon oaksoil in western Oregon riparian ecosystems

Laura Sims and Everett Hansen

Department of Botany and Plant Pathology, Oregon State University, 1085 Cordley Hall, Corvallis Oregon 97331, USA. simsla@science.oregonstate.edu

Phytophthora taxon oaksoil, an ITS clade 6 *Phytophthora*, was collected from 58 of 88 transects in western Oregon USA riparian alder ecosystems. From water and rhizosphere sampling between the months of June-October 2010, more than 500 isolates were collected. Continued sampling in 2011-12 revealed consistent high levels of this organism in water. Water samples containing *P.* taxon oaksoil were collected year round with more isolates collected per liter during the summer and fall while leaves were falling and accumulating in waterways. It was found that *P.* taxon oaksoil can sporulate and grow on dried and fresh green alder leaves and petioles floated in water under laboratory conditions. *P.* taxon oaksoil was also easily, repeatedly and frequently isolated from fallen alder leaves but only rarely from necrotic fine roots and never from attached leaves above the waterline. The combined evidence suggests *P.* taxon oaksoil is growing and sporulating from alder leaf debris in riparian ecosystems in western Oregon driving up the number of propagules found in water. Little is known about the roles of *Phytophthora* species in ecosystems beyond the aggressive pathogens, but it is likely that *P.* taxon oaksoil can use plant debris such as leaves as a carbon source and as a substrate for asexual reproduction.

Poster 69

A simple, rapid and inexpensive chemical method for the detection phosphite in plant tissue

Patsy Stasikowski[1], Doug Clark[1], Jen McComb[1], Bryan Shearer[2], Philip O'Brien[1], Giles Hardy[1]

[1]Centre for Phytophthora Science and Management, School of Biological Sciences and Biotechnology, Murdoch University, Perth, WA, Australia; [2]Science Division, Department of Environment and Conservation, Locked Bag 104, Bentley Delivery Centre, WA 6983, Australia. E-mail: g.hardy@murdoch.edu.au

Phosphite (phosphonate) is widely applied to plant communities to control the spread and impact of *Phytophthora* species in natural and peri-urban woodland and forest ecosystems. Determining (1) if phosphite applications have been successfully taken up *in planta*, (2) how phosphite is distributed around plants across seasons, and (3) when plants need to be retreated to maintain effective pathogen control is problematic due to the time and costs associated with current methods. This paper describes a direct chemical method of rapidly and effectively estimating the concentration of phosphite in plant material using a silver nitrate reagent. Glass fiber filter papers (Whatman GF/B) are saturated with acidified silver nitrate (1 M) and dried for 2 hours at 60^0C. 20 uL of a PVPP treated aqueous plant extract is then adsorbed on to the filter paper and incubated in the dark at room temperature for 1 hour. The presence of phosphite in the extract reduces the silver ions to elemental silver resulting in a grey-black precipitate that is clearly visible. The method was successfully tested on the roots and leaves of a range of exotic and Australian native plants species from different families and genera which had been treated with 0.3% phosphite. The method is rapid, sensitive and inexpensive, and can detect phosphite at concentrations of 1 mM in 20 ul of aqueous extract from 100 mg of fresh plant material, equivalent to 82 ug g^{-1} fresh weight, or 20 nmol phosphite per sample. The concentrations detected by the silver nitrate method equated well with the more expensive and less rapid HPLC method that we used to confirm the accuracy of the assay.

The Sixth Meeting of the International Union of Forest Research Organizations

IUFRO Working Party 7-02-09

Phytophthora in Forests and Natural Ecosystems

Córdoba (Spain)
9th - 14th September
2012