

***Phytophthora ramorum* Tissue Colonization Studied With Fluorescence Microscopy¹**

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Abstract

The proceeding worldwide spread and the expanding host spectrum of *P. ramorum* has become a serious threat to natural plant communities. To encounter this threat detailed knowledge about infection pathways and tissue colonization is essential. To analyze these issues, histological studies of infected tissue with epifluorescence microscopy have been started. For first infection tests *Rhododendron* has been taken as a model host. Root infection of potted *Rhododendron* cuttings with the *P. ramorum* isolate BBA 9/95 (ex-type strain) were started. Inoculation of the non injured plants was done by application of a zoospore suspension onto the surface of the pot soil. The plants were then incubated with 16 hour light at 20°C in a quarantine chamber. Samples of healthy looking plants and plants with typical symptoms were taken and fixed. Unstained hand-cuttings were analyzed with fluorescence microscopy. The development of zoosporangia on the leaf surface was analyzed using the vital stain FUN®1 (Molecular Probes). Natural autofluorescence of *P. ramorum* and plant tissue is enhanced using the fixing fluid FAA (formaline-aceto-alcohol). Epifluorescence images showing *P. ramorum* structures in different tissues and in different stages of disease development are presented. An overview of the development of *P. ramorum* in *Rhododendron* root, twig and leaf tissue is offered for discussion.

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