

Composting of forestry wastes to contain the spread of the exotic plant pathogens

Plant material infected with the exotic pathogens *Phytophthora kernoviae* and *Phytophthora ramorum*, particularly of the invasive and highly susceptible *Rhododendron ponticum*, can pose a risk to indigenous host flora in Britain. Areas of infected bilberry (*Vaccinium myrtillus*) can also threaten surrounding non-infected heathland. Similarly, ash dieback, caused by the fungus *Hymenoscyphus fraxineus* (anamorph *Chalara fraxinea*) has since spread widely in the UK, causing leaf loss and crown dieback symptoms which can lead to tree death in a range of *Fraxinus* species including the common ash (*Fraxinus excelsior*). Composting was examined as a more environmentally acceptable method of disposal of infected plant material than burning. Composting has been shown to be an effective method for reducing inoculum of *P. ramorum* from infected plant wastes to below a detectable level. *P. kernoviae*, *P. ramorum* and *H. fraxineus* have been shown to be susceptible to compost temperatures and exposure times which are achieved in well managed composting systems.

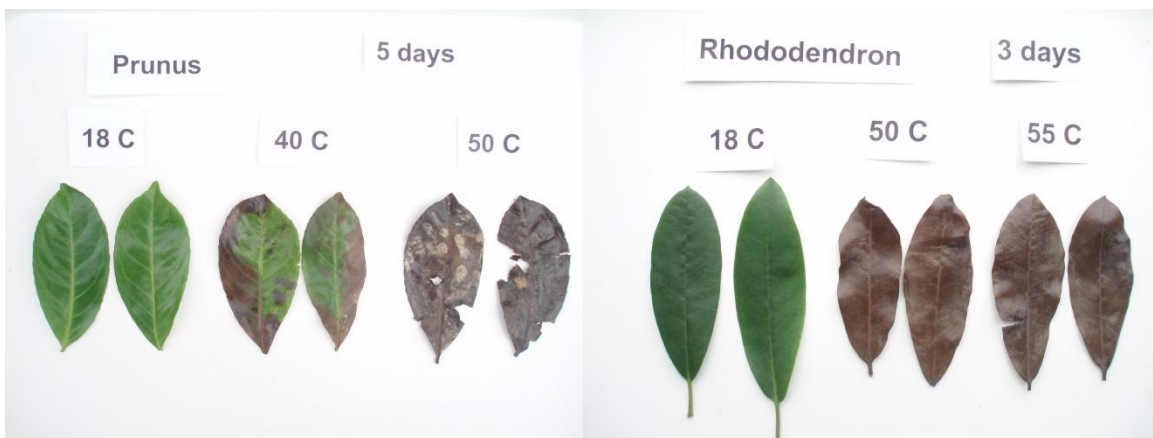
Temperature and exposure time are usually the most important and easily verified factors in eradicating pathogens during composting, but other factors such as moisture and gaseous conditions in the compost may also have an influence. The viability of indicator organisms in the compost has therefore been used to provide additional information on sanitisation. The discoloration of waxy leaves such as those of *R. ponticum* during composting is an indicator of the sanitising effect of the composting process; this has the advantages of the indicator being present throughout the composting mass rather than only at specific monitoring points, as well as the results being immediately apparent.



Ash tree infected with *H. fraxineus* and ash rachises showing emergence of apothecia



Rhododendron ponticum infected with *Phytophthora ramorum* (left) and *P. kernoviae* (right)



Discolouration of waxy leaves as an indicator of compost temperature



Turning of forestry waste showing heat produced in a well-managed and insulated composting system

References

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