

Host testing and taxonomic clarification of a potential fungal biological control agent of sea spurge (*Euphorbia paralias*)

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Summary Sea spurge (*Euphorbia paralias*) is a fleshy perennial native to sand dunes of western and southern Europe. In Australia however the plant is an invader of coastal habitats and has become established on many beaches and dunes across southern Australia. Worryingly, sea spurge is now widespread and abundant on beaches along the New South Wales South Coast and is progressively moving northwards. An effective biological control agent against sea spurge would be a welcome tool in the fight against this invasive beach weed. In 2009 a cercosporoid hyphomycete fungus, *Passalora euphorbiae*, was isolated from sea spurge near La Salie on the French Atlantic coast where it was found to cause impressive leaf and stem disease on the plant. Initial host testing with this fungus in France was encouraging and the fungus was imported into quarantine in Australia for further host-specificity testing. A comprehensive host

test list encompassing *Euphorbia* species from the four *Euphorbia* sub-genera has been established and this study will report on the initial host-testing of the potential fungal biocontrol agent on these *Euphorbia* species. In addition, although the fungus was originally classified within the Ascomycete fungal genus *Passalora* recent taxonomic revisions of the fungal family Mycosphaerellaceae have raised doubts on the correct identity of the fungus. We therefore employ DNA sequence data from several informative nuclear and protein-coding gene regions, in combination with a range of informative morphological characteristics, to critically examine and finalise the taxonomy of this potentially important fungal biological control agent of sea spurge.

Keywords *Euphorbia*, sea spurge, fungal bio-control agent, Mycosphaerellaceae, *Passalora*.