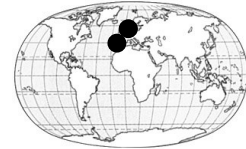


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SOIL MICROBIOLOGICAL EFFECTS OF THE INVASIVE SPECIES *ACACIA LONGIFOLIA*

Mediterranean ecosystems are among the most seriously affected by invasive species, with alarming decreases in biodiversity and changes to ecosystem processes. Soil microbial processes respond to the composition of the plant community and vice versa, and consequently it is of particular concern if plant-driven changes in soil processes could create feedback mechanisms that increase the invasibility of a particular species. In the Portuguese dune ecosystems, Sydney golden wattle (*Acacia longifolia* (Andrews) Willd) is one of the most threatening invasive plant species. This species was planted at the beginning of the last century to curb sand erosion but has now proliferated and is causing significant ecological impacts. The present study aims to evaluate some of the effects of this invasive species on soil processes. In the Natural Reserve of São Jacinto Dunes, a coastal dune ecosystem, areas invaded by Sydney golden wattle were compared with areas with native vegetation with respect to several soil microbiological parameters: potential nitrification, substrate induced respiration, basal respiration, B-glucosaminidase activity and active microfungi. Three soil samples were collected in each area, at two different depths: 0 - 10cm and 10 - 20cm. Results show a clear trend to an increase of microbiological activity in the presence of the invasive species. Despite the effect of *A. longifolia* being more pronounced in the upper 10cm, it is still possible to observe its effects at 20cm. Results are discussed considering possible implications for carbon and nitrogen cycling and management options.

keywords: *Acacia longifolia*, Portugal, soil microbiology