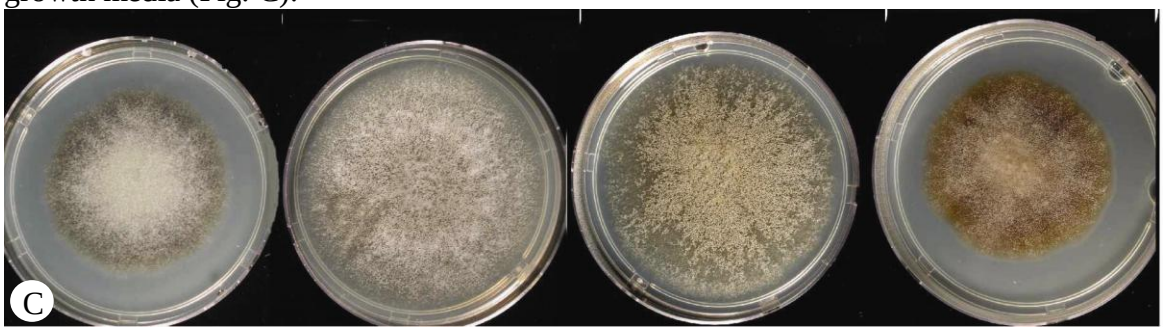
DYING CLOVE TREES INFECTED BY A NOVEL FUNGUS

Clove decline is a serious disease affecting *Syzygium aromaticum* (clove trees) in North Sulawesi, Indonesia. Yet, the cause of this disease has never been established. During an inspection of the diseased clove trees, at 18 sites, 20-80% of these trees were found to be affected (Fig. A). Diseased clove trees showed symptoms of wilt, defoliation and vascular staining. Dying trees were typically infested with the woodborer *Hexamitodora semivelutina* (Fig. B). Larval tunnels are associated with extensive discolouration of the xylem tissue, which had a streaked appearance. Isolations from discoloured wood and larval galleries consistently yielded a fungal species in the genus *Ceratocystis*. Morphologically, it was similar to the fungus *C. fimbriata sensu stricto* (*s.s*), which is a pathogen of *Ipomoea batatas* (sweet potato). Comparisons of DNA sequence data showed that this *Ceratocystis* sp. is distinct from *C. fimbriata s.s* and all other *Ceratocystis* sp. It could also be distinguished from other *Ceratocystis* spp. based on colony morphology and a distinct ecology. It was, therefore, described as a new taxon, now known as *C. polychroma*. The name "polychroma" is derived from the Latin, “multi-coloured” referring to the different colony colours that are observed for this fungus at different temperatures on artificial growth media (Fig. C).



To assess the potential role of *C. polychroma* in the death of clove trees in Sulawesi, pathogenicity tests were conducted. These tests were both on seedlings in a greenhouse as well as on mature trees in the field. Trees were inoculated with agar plugs bearing *C. polychroma* or sterile agar in the case of the controls. After 6 weeks, distinct lesions were found on the stems of inoculated trees (Fig. D) and these were absent in the case of the controls. These results lead us to conclude that *C. polychroma* is contributing to the death of Clove trees in Sulawesi.

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