Fungal colonization and decay in tropical bamboo species

Abstract

The development of fungal colonization and decay in the culms of a tropical bamboo*Gigantochloa scortechinii*, through ground contact tests in a tropical soil were described. Observations were made using Scanning Electron Microscopy (SEM). Both untreated and samples treated with either Borax-Boric Acid mixture (BBA) Ammoniacal Copper Quaternary (ACQ) ammonium compound or Copper-Chrome-arsenic (CCA) were investigated. Over 24-months of exposure, untreated and ineffectively treated culms exhibited extensive degradation and colonisation of all tissues (ground tissue parenchyma, fibers and vascular elements) by fungi. Fungal colonists were observed in the cell lumina, the degraded cell walls and in the intercellular spaces. The morphology of decay was a characteristic of degradation by white and soft rot fungi and occasionally, was accompanied by bacterial attack. In contrast, the tissues of culms that had received effective preservative treatments had restricted hyphal colonisation with infrequent hypal invasion into cell via pits; or without cell wall degradation.