Background: Connections between mature trees and seedlings via ectomycorrhizal (EcM) hyphal networks existing in dipterocarp-dominated tropical rain forests of South-east Asia could have strong implications for seedling growth and survival and the maintenance of high diversity in such forests.

Aim: To test whether EcM hyphal network connections are important for the growth and survival of dipterocarp seedlings.

Methods: We conducted four independent experiments that prevented contact of experimental seedlings with an EcM network by using a series of fine meshes and/or plastic barriers. We measured the growth and survival (and foliar $\delta^{13}C$ in one experiment) of seedlings of six dipterocarp species over intervals ranging from 11 to 29 months.

Results: Seedling growth (diameter, height or leaf number) was unaffected by exclusion from the EcM network in three experiments and there were no differences in foliar $\delta^{13}C$ values in the fourth. Seedling survival was reduced following exclusion from the EcM network in one experiment. Our results give little support to the hypothesis that dipterocarp seedlings growing in the shaded forest understorey benefit from being connected, through a common EcM network, to surrounding trees.

Conclusions: We suggest that our negative results, in contrast to studies conducted in low diversity boreo-temperate or tropical forests, are due to these high diversity forests lacking host species-specific EcM fungi and therefore providing little opportunity for adaptive support of seedlings via hyphal networks.

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