Plant cover loss due to changes in land use promotes a decrease in spore diversity of arbuscular mycorrhizal fungi (AMF), viable mycelium and, therefore, in AMF colonization, this has an influence in community diversity and, as a consequence, in its recovery.

To evaluate different AMF propagules, nine plots in a tropical dry forest with secondary vegetation were selected: 0, 1, 7, 10, 14, 18, 22, 25, and 27 years after abandonment in Nizanda, Oaxaca, Mexico. The secondary vegetation with different stages of development is a consequence of slash and burn agriculture, and posterior abandonment. Soil samples (six per plot) were collected and percentage of AMF field colonization, extrarradical mycelium, viable spore density, infectivity and most probable number (MPN) of AMF propagules were quantified through a bioassay. Means for field colonization ranged between 40 % and 70 %, mean of total mycelium length was 15.7 ± 1.88 mg-1 dry soil, with significant differences between plots; however, more than 40 % of extracted mycelium was not viable, between 60 and 456 spores in 100 g of dry soil were recorded, but more than 64 % showed some kind of damage. Infectivity values fluctuated between 20 % and 50 %, while MPN showed a mean value of 85.42 ± 44.17 propagules (100 g dry soil). We conclude that secondary communities generated by elimination of vegetation with agricultural purposes in a dry forest in Nizanda do not show elimination of propagules, probably as a consequence of the low input agriculture practices in this area, which may encourage natural regeneration. Rev. Biol. Trop. 56 (1): 269-277. Epub 2008 March 31.

Keywords

Arbuscular mycorrhizal fungi (AMF), AMF field colonization, AMF spores density, most probable number (MPN), secondary vegetation, tropical dry forest.