Name	Counterpart	Title
Sri Wilarso Budi	BO7	Abundance and diversity of arbuscular mycorrhizal fungi from different ecosystems in Jambi, Sumatra

Background and Methods

Mycorrhizal fungi play important roles in a sustainable soil-plant system. These fungi provide numerous benefits to their host including better phosphorous (P) nutrition, increased absorption of nitrogen, production of plant growth hormones, defence of the roots against soil borne diseases, and increased plant growth and productivity. Arbuscular mycorrhizal fungi (AMF) are a type of mycorrhizae that are very widespread in natural ecosystems. The OBJECTIVES of this research were to determine the abundance and diversity of AMF under different land use types in the lowland rain forest zone located in Bukit Duabelas National Park and Harapan Forest Jambi Province compared to riparian areas in the same region.

Results

The number of AMF spores in oil palm plantations was higher than in all other ecosystem types whether in Bukit Duabelas, Harapan Rain Forest or in the riparian ecosystem (figure 1). This finding is of interest because it confirms results in non riparian transformed ecosystems. This research also demonstrates that in transformed riparian ecosystem the number of AMF spores was higher in oil palm plantations than in either natural forest or in rubber plantations. AMF have a seasonal pattern of spore production that is closely related to plant phenology. Ecosystem disturbance may also influence the abundance and distribution of AMF spores. Rubber plantations and oil palm plantation are disturbed ecosystems and have higher spore numbers than undisturbed jungle rubber ecosystems. The number of AMF spores in an ecosystem is correlated with P availability in the soil. The greater the availability of P in the soil the lower the number of AMF spores is likely to be. High P availability indicates a fertile soil but low P availability indicates the contrary, an infertile soil. The diversity of AMF spores was low in disturbed ecosystem (figure 2). This low diversity of AMF species in oil palm plantations might be due to (i) loss of host plants and (ii) unfavourable edaphic conditions for regeneration of AMF in the transformed land. The amount of organic matter in the soil also plays an important role in AMF sporulation. Further research is needed to determine whether the transformation of forests to rubber plantation or oil palm plantation reduces soil fertility.

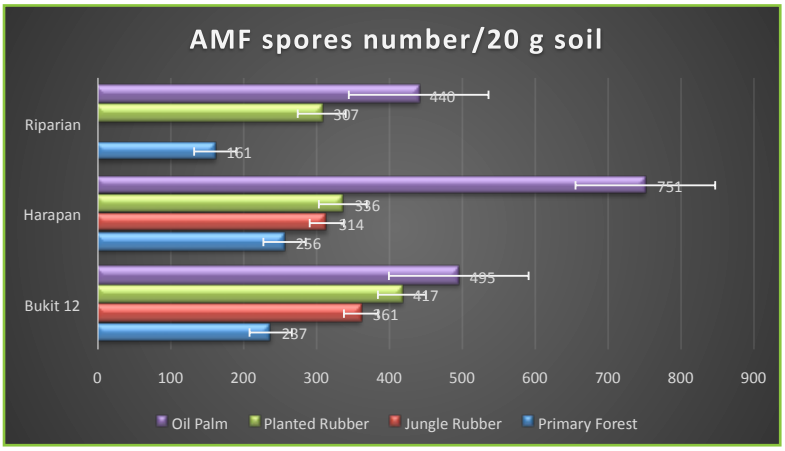

Figure 1. Number of AMF spores in different ecosystem types. Jambi Province.

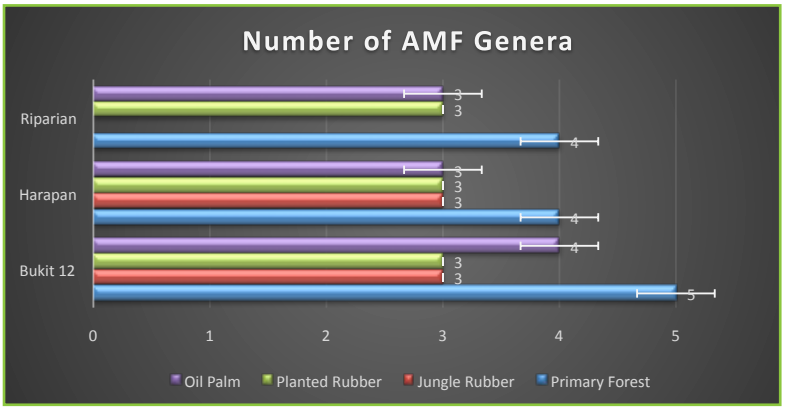

Figure 2. Number of AMF genera in the different ecosystem types, Jambi Province.