

**A PRELIMINARY STUDY OF SOIL ENDOMYCORRHIZAL POPULATION
ALONG A SMALL-SCALE ELEVATIONAL GRADIENT AT 25 HA FOREST
DYNAMIC PLOT AT SINHARAJA, SRI LANKA**

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Most tropical rainforest trees have strongly aggregated spatial distribution patterns. This aggregated spatial distribution remains an unanswered question in tropical forest ecology so far. However, recent studies demonstrate that species distributions are strongly aggregated with respect to variation in topography, soil water and soil nutrient status. Furthermore, it has been suggested that mycorrhizae have a potential role to play in nutrient cycling and plant growth in tropical rain forests and a possible influence on the species composition.

Floristic composition and structure of the 25 ha forest dynamic plot at Sinharaja, a lowland rainforest, varies along a small-scale altitudinal gradient ($\approx 150\text{m}$). In addition, spatial distribution patterns of tree species within this plot show an interesting correlation with topography. Therefore, this study attempts to examine the variation in endomycorrhizal population along this small-scale elevation gradient in Sinharaja. To fulfill this objective soil sampling was carried out (during a relatively dry season) in three transects along the elevation gradient. Soil samples were collected at 15 m intervals from ridge to the valley. Endomycorrhizal spores were isolated using wet-sieving and decanting method and counted with the help of a stereo zooming microscope with an external light source.

Results indicate that the total number of endomycorrhizal spores was higher in both upper and lower slopes, but less in mid-slopes. However, correlation results showed a decreasing trend in total number of spores with the elevation from upper slopes to lower slopes, although this is not significant ($R^2 = 0.109$). In all instances examined, the number of small spores (45-125 μm size class) contributed more to the total spore count. It was difficult to discern whether these small spores belong to a single species or not.

There may be many factors, which could be attributed to the variation in spore populations along this small-scale elevation gradient, such as availability of suitable hosts and variations in the soil physical parameters. Further studies are needed to clarify this. In addition, seasonal variations may also affect spore population. Soil sampling will be continued during the wet season to assess the fluctuations in the endomycorrhizal population with the season.

Financial assistance provided by the Center for Tropical Forest Science Arnold Arboretum (CTFS – AA) is acknowledged.