432/D

Distribution of lichens with respect to pH variation of the host trees within the Horton Plains national park, Sri Lanka

R G U Jayalal[1], D S A Wijesundara[2] and V Karunaratne[1]*
[1]*Department of Chemistry, Faculty of Science, University of Peradeniya, Peradeniya*
[2]*Department of National Botanic Gardens, Peradeniya*

The substratum characteristics play an important role in lichen colonization. For epiphytic lichens, bark properties such as acidity, nutrient content, roughness and microclimatic factors determine the composition of lichen communities. Of these, bark acidity expressed as a pH value is considered the most important one. The objective of the study was to document the lichen (epiphytic organism) diversity, with respect to the bark pH variations of host trees, within the Horton Plains National Park (HPNP). The surface pH was measured from the bark samples collected at the 1.5 m above the ground level of 451 trees. Data were analyzed using correlation analysis (Minitab 14.0). According to the observations most of the lichens (349 species) present in study sites preferred a relatively low pH range (4.0-6.0). The dominant macrolichens within this pH range were *Lobaria retigera, Pseudocyphellaria beccarii, Heterodermia microphylla* and dominant microlichens were *Graphis* sp. and *Myriotrema* sp.. Only few lichens (45 species) preferred an extremely low pH range (3.00 - 3.99) or extremely high pH (8.00 - 8.99) range. The highest number of lichen species preferred a low pH range (4.0-6.0) in the continuous forest such as *Heterodermia leucomelos, Pseudocyphellaria beccarii, Graphis* sp.. Whereas in forest patches most lichen species such as *Lobaria retigera, Pseudocyphellaria intricata, Thelotrema* sp.. preferred a relatively higher pH range (5.0-7.0).Trees having larger diameter such as *Calophyllum walkeri, Eugenia maboaeides* possessed high bark pH values while smaller trees such as *Symplocos cochinchinensis, Actinodaphne speciosa* showed slightly low pH values. A high density of lichen species was observed in trees with a smaller diameter when compared to trees with a larger diameter. The variation of bark pH seemed to be affected by tree diameter where trees with larger diameter showed a basic condition. This may be a result of less amount of leaching experienced by trees with large diameter having larger crowns. When an acidic bark condition is present, it influences the species composition and is probably the most important factor determining the natural lichen flora of the trees.

Financial assistance by NSF, Sri Lanka (RG/2004/BM/01) is acknowledged.

*veranjak@pdn.ac.lk Tel: 081-2394446