D-61 Some studies on the distribution of lichens and air quality in Colombo and suburbs

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Lichens are a unique group of plants highly sensitive to nature's disturbances and have been used as indicators of pollution. In this study, investigations were done on the distribution and number of different types of lichens on selected trees at the following sites: Garden of the University of Sri Jayewardenapura (site 1), Viharamaha Devi Park (site 2), Sugathadasa stadium (site 3), Borella cemetery (site 4), Ranala (site 5), Sapugaskanda (site 6). Tree trunk from 0.5 m to 1.5 m from the base was the sample area selected. Lichens in the sample area were recorded using 20 x 20 cm quadrates. At one site 3 trees from each species were used and Tukey's test was used separately for analyses of data. Identification was done using morphology, reproductive structures and micro-crystalline structure of lichen substances. SO_2 content of the ambient air was measured using sulphation rate with a lead dioxide candle.

Site 1 had significantly high values for both percentage of lichen cover and number of different species. *Roystonia regia* had similar values for lichen cover in both sites 1 and 2 but site 2 had a well known pollutant tolerant genus *Lecanora*. Percentage lichen cover values on *Polyalthia longifolia, Terminalia cattappa* and *Delonix regia* in site 1 were 96.23%, 93.59% and 32.25% respectively while in site 3 the same trees had 12.0%, 5.87% and 0.52% lichen cover respectively. Site 5 and 6 had pale coloured, unhealthy looking crustose lichens with few reproductive structures. Higher sulphation rates were observed in all sites except site 1.

The possible reason for this difference in distribution of lichens could be due to difference in air quality observed with respect to SO_2 content. As lichens are well known for their sensitivity to air pollutants they would be ideal for continuous monitoring in the absence of sophisticated equipment.