



## **Impact of a Paper Mill on Surrounding Epiphytic Lichen Communities Using Multivariate Analysis**

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**Abstract:** The present study analyses the effect of a paper mill on epiphytic lichen communities in Barak Valley, Assam, India. Lichen thallus size, thallus number and frequency of occurrence, along with diversity of lichens at three levels (species, generic, and family) are considered as variables to see the community composition across the distance from a paper mill. Number of lichen thallus per tree in study area ranged from 3 to 16, while thallus area per tree varied from 20 cm<sup>2</sup> to 256.48 cm<sup>2</sup>. Number of species showed high positive correlation with number of genera, families, thalli and thallus area. Number of thalli showed high positive correlation with area covered, number of thallus, and thallus area per tree. Distance from the paper mill exhibited no significant correlation with either variable. Multivariate analysis showed two major groups and two subgroups of communities. Sites which are more polluted showed a decrease in the community variables. Fifteen out of seventeen sites were most affected ones. Epiphytic lichen community study thus can be used to study levels of pollution impact around a source of pollution.

**Key Words:** Epiphytic lichen community, Paper mill, Pollution, Cluster analysis

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