



## “TRUE” MEASURE OF LITHOPHYTES DIVERSITY ACROSS MICROCLIMATE

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**ABSTRACT** – Microclimate is an important factor in the establishment of lithophytes found along river headwaters. Microclimate, as influenced by air temperature and humidity, is a major influence on lithophyte diversity. This study measures lithophyte diversity along a longitudinal gradient of river headwaters using different measures of diversity. Microclimate and lithophyte diversity are described along eight (8) sampling sites extending 400 m longitudinally from the upper to lower reaches of the headwater. Plants were identified using available and relevant taxonomic literature. The population counts of identified lithophytes were analyzed to obtain different measures of diversity. A total of 20 lithophytes species belonging to nine (9) families were identified as: 10 species for Polypodiaceae; 2 for each Orchidaceae and Liliaceae; and 1 for each Amaryllidaceae, Begoniaceae, Caprifoliaceae, Crassulaceae, Piperaceae and Sellaginellaceae. Lithophytes from upper reaches were more diverse than the lithophytes located in the lower reaches. Chronological ranking between species richness ( $S_r$ ), and Shannon entropy ( $H'$ ) and Gini-Simpson ( $HGS$ ) diversity indices revealed inconsistencies.  $H'$  and  $HGS$  have the same ranking with their equivalent effective number of species ( $N_qH'$  and  $N_qHGS$ ). There is a significant relationship between microclimate and lithophytes diversity with high humidity and low temperature providing suitable environment for their growth and diversity. Confidence interval difference ( $CID$ ) of  $N_qH'$  and  $N_qHGS$  are narrower, compared to  $S_r$ ,  $H'$  and  $HGS$ . Effective number of species and their function was found to be a true measure of diversity, making interpretations increasingly relevant and ultimately more valid.

*Keywords: diversity, microclimate, lithophytes*



JOURNAL OF NATURE STUDIES  
(formerly Nature's Bulletin)  
ISSN: 1655-3179