



**THE EFFECT OF AIR TEMPERATURE RISES INSIDE OPEN TOP CHAMBERS (OTCs) ON THE PHOTOSYNTHETIC ACTIVITY OF LICHEN *Heterodermia flabellata* AT DOI INTHANON, THAILAND.**

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**Abstract:**

Climate change is threatening lichen around the world, especially species growing at high elevations and in cool areas. This study aims to investigate the efficiency of photosynthetic activity of *Heterodermia flabellata* impacted by increased air temperature inside Open Top Chambers (OTCs). Five OTCs were installed for lichen experiments under field conditions at Doi Inthanon, Thailand. Our results found that the mean air temperature in the photosynthesis active and maximum air temperature inside OTCs has higher than 1.1 and 4.5°C, and relative humidity is lower than 4% compared with the references site (outside OTCs). The response of photosynthetic activity ( $\Phi_{PSII}$  and ETR value) of *H. flabellata* related to thallus water content. Lichens growing inside OTCs had photosynthetic efficiency lower than lichens growing outside OTCs. Moreover, after three months of long-term monitoring, the Fv/Fm value of *H. flabellata* shows Fv/Fm value inside OTCs recorded at 0.535 lower than that outside OTCs recorded at 0.560. Therefore, the mean air temperature increases to 1.1°C could be affected to reduce photosynthetic efficiency and growth rate of lichens. In addition, the projection of increasing temperature results that endemic lichens having a high risk of extinction and deterioration of the lichen community under global warming.