Nitrogen and Potassium Leaching Off Inselberg Surface Lichens at the University of Ife.

Ekeleme, Friday

M.Sc. Botany

Department of Botany

Obafemi Awolowo University, Ile Ife, Nigeria

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Abstract:

The leaching of nitrogen (nitrate-nitrogen and total nitrogen) and potassium off inselberg surface lichens by rainfall on Hill II, University of Ife campus was studied in the period between 11th March and 15th October, 1985. Rain free-fall, surface flow off lichen surfaces on the inselberg and run off from vegetation mats were collected from permanent collecting points after each shower.
The nitrate-nitrogen, total-nitrogen and potassium amounts of free-fall were 1.74, 12.33 and 6.18 $kgha^{-1}yr^{-1}$ respectively. The inputs of these elements were highest in the early part of the rainy season.

The concentrations of nitrate-nitrogen, total-nitrogen and potassium leached off the lichens fluctuated widely without any obvious pattern. This is discussed in relation to lichen physiology. Overall, 3.15 $kgha^{-1}yr^{-1}$ nitrate-nitrogen, 49.73$kgha^{-1}yr^{-1}$ total-nitrogen and 30.77$kgha^{-1}yr^{-1}$ potassium was leached off lichen surfaces. The highest concentration of potassium was leached in the first five showers.

A comparison of both the concentrations and leaching patterns of total-nitrogen and nitrate-nitrogen off inselberg surface lichens with that leached off the vegetation mats showed that the amounts of these elements leached off the mats fluctuated as much as that leached off the lichens. The amounts of potassium leached off vegetation mats decreased as the season progressed. An estimated 2.3l$kgha^{-1}yr^{-1}$ nitrate-nitrogen, 32.73$kgha^{-1}yr^{-1}$ total-nitrogen and 25.l10$kgha^{-1}yr^{-1}$ potassium was leached off the vegetation mats. The amounts/quantities of these nutrient elements leached off the lichens were on the average higher than that leached off the mats.
The estimated quantities ($kgha^{-1}yr^{-1}$) of nitrate-nitrogen, total-nitrogen and potassium charged to the environment surrounding the inselberg used for the study were 5.46, 82.46 and 55.87 respectively.

Keywords: Leaching/ inselberg/ nitrogen/ potassium

Supervisor: A. O. Isichei

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