Comparing Rangeland Soil-Vegetation Mineral Content Based on Elevation Classes and Phenological Stages in North-Facing Slopes, Sabalan Region, Ardabil Province

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Abstract

This study was conducted to determine some mineral content concentrations in soils and plants of three elevation classes (1500, 2200 and 3000m) and two phenological stages of flowering and seedling in north facing slopes of Sabalan rangelands. Soil samples from the depth of 20cm and plant samples using 1×1m plots with 10 replications were collected. After sample preparation, the concentrations of minerals such as calcium, phosphorous, sodium, potassium, ion, copper, zinc and magnesium were determined using spectrophotometer and flame photometer. Data was analyzed by SAS9.1 software using a Completely Randomized Design with a Generalized Linear Model procedure. Results showed that elevation had a significant effect on Ca, Fe, Cu, Zn and Mn of soil and P, Na, K, Mg and Mn of plants in the study areas ($P\leq0.05$). Growing stages had a significant effect on all elements of plants except Ca ($P\leq0.05$). Moreover, results showed that in three elevation classes the high demand minerals' concentrations were higher at the starting seedling stage in comparison with the flowering stage. In contrast, the low demand minerals' concentrations in three elevation sites were higher in the flowering stage in comparison with seedling stage. Interaction effect of elevation and growing stage was also significant in relation to all elements except Ca ($P\leq0.05$).

Keywords: Rangeland, Minerals, Soil, plant, Elevation, Growth Stage, Phenology.

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