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Soil nutrient concentration with increasing elevational pattern in high altitude pastures in Leh Ladakh, India.

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The extreme biophysical and climatic conditions in the trans-Himalayan region of Ladakh limits the plant growth and therefore since, time immemorial, high altitude pastures has been utilized for food and fodder security along with crop farming. The study investigated the changes in the concentration of organic carbon (C), nitrogen (N) and phosphorus (P), potassium (K) and ph in soil of high altitude pastures along the altitudinal gradient (4000 to 5500m amsl) in Leh Ladakh, India. Three sites were chosen for the study: Gya pasture (4500-5500 m), Shang pasture (4200-5000 m) and Igoo pasture (4000 to 4800 m). The results showed that concentration of soil organic carbon C and total nitrogen increased with increasing altitude in all the three sites. The concentration of available phosphorus P and available potassium K slightly decreased and had a non-linear relationship, however in case of Igoo pasture, the P and K value increased with increasing altitude. While the ph remained towards basic (ph= 7-8) irrespective of the site and elevational change. Besides the elevation, the practice of livestock grazing during summer migration could also impact the soil nutrient concentration as higher nitrogen and carbon content is observed near the temporary settlements of the herders in the sites where the practice was still intact.