Investigation of Palatability and Quality of Plants Species Different Parts Used by Goats (Case Study: Rangelands of Nodooshan-Yazd)

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Abstract

In order to evaluate the grazing capacity as well as to implement an integrated rangeland management, it is necessary to be aware of forage quality. The most important factor affecting forage quality is plant growth stage, which refers to the most suitable time for grazing. Also, because of different quality of plant parts and different weight ratio in various phenological stages, the awareness of different parts quality is useful in suitable grazing time determination. In this research, samples were taken from four species, including *Artemisia sieberi*, *Salsola kernerii*, *Aelienia subaphylla* and *Eurotia ceratoides*. Samples were collected at three phenological stages of vegetative growth, flowering, and seed ripening from rangelands of Nudooshan-yazd. Plant samples were dried and separated in terms of plant parts. They were milled and analyzed with Near Infrared Reflectance Spectroscopy method for important qualitative factors for leaf, stem and flower such as: CP, ADF, DMD and ME. For determining palatability of species, 3 goats were selected from the herd, then, the time that each livestock spends on eating of each plant species was noted 3 times a day (morning, noon and afternoon) for a period of 30 minutes each time of palatability measurement in each phenological stage based on the timing method with stopwatch. Then, percentage of palatability for each species in each phenological stage was calculated. In terms of quality, there were significant differences (p<0.01) among species, plant parts and phenological stages. Also, interaction of plant species×growth stage, plant species×organ and plant species×growth stage×organ had significant differences in these factors. Almost in all species, the amount of CP, DMD and ME decreased with progressing growth stages, while ADF contents increased. Significant differences were observed in palatability of different species, in different times of day and also various phenological stages. Their interactions also were significant.

**Keywords:** Quality, Palatability, Organ, Phenological Stage, Different Times of Day, Goat