

Investigating Preference Index-based Palatability of Rangeland Plants in Sirik Region, Hormozgan Province

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Extended Abstract

Introduction: Measuring the preferred value of rangeland plants is one of the most important factors in determining rangelands' grazing capacity. The preferential value of rangeland plants is measured based on the type of livestock which uses the rangeland and the changes made in the rangeland during the grazing season. This study sought to investigate the palatability of rangeland plant species within the Sirik rangeland (Hormozgan province) during the grazing season (January to May) of the years 2007-2010.

Materials and Methods: The study area was located at sand dunes of Sirik city (Hormozgan province) at 26° 39' 12" and 57° 4' 26" overlooking the sea. The 30-year ambrothermic curve of the study area showed that the wet and dry seasons lasted one and eleven months, respectively. The average minimum and maximum temperatures of the study area in the coldest and warmest months of the year were found to be 14.36 °C and 33.78 °C, respectively. However, the lowest and highest temperatures in the region were 5.5 and 48.5 °C, respectively, and its average 30-year rainfall rate was 121.8 mm.

The region's rangeland type was a mixture of *Sphaerocoma aucheri* and *Cenchrus pennisetiformis*. In the study area, seventy plant species from twenty-eight genera were collected and identified, the most important of which were *Moltkiopsis Ciliata*, *Heliotropium bacciferum*, *Cyperus conglomeratus*, and *Panicum turgidum*. The livestock examined in this study was Tali goat that is bred in Hormozgan, Sistan and Baluchestan, and Bushehr provinces.

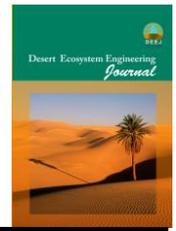
This study was conducted in Sirik rangeland, Hormozgan province, throughout the grazing season (January to May) for four consecutive years (2007 to 2010). The study area comprised a one-hectare enclosed area located on sand dunes ten kilometers away from Sirik city, overlooking the sea. At the beginning of the grazing season, five similar rootstocks were selected for each species and marked inside and outside the enclosed area.

The forage of each rootstock was placed in a separate bag and weighed. Then the consumption percentage was determined for each species. Each species' share in the livestock diet was determined throughout the grazing season by calculating the percentage of production and consumption of species inside and outside the enclosed area. Moreover, the preference index was obtained by dividing the species' share outside the enclosed area by its share inside the area. Finally, preferential value indices were determined according to the classification proposed by Rosiere *et al.* (1975). The study's results were analyzed in a time-based split-plot statistical design through a

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complete randomized block design in SAS software, followed by comparing the statistical mean of the studied features with the results of the LSD test.

Results: The analysis of the variance of the preferred index showed that there was no significant difference among the studied years. However, a significant difference was found between the months of the study period and between the species examined. The years of the study period were grouped together in one statistical category, and the months of the study period were classified into two statistical categories. The highest value of the preference index was found in March, which was in the same group as January. *Cenchrus pennisetiformis* showed the highest preference index with the value of 1.516, followed by *Cyperus conglomeratus*, whose value was reported to be 1.338, both of which were not statistically significant. It was also found that *Cenchrus pennisetiformis* was a relatively palatable species (relative preference), *Cyperus conglomeratus*, *Sphaerocoma aucheri*, *Moltkiopsis Ciliata*, and *Panicum turgidum* were moderately palatable species (moderate preference), and *Heliotropium bacciferum* was identified as almost a non-palatable (relative avoidance) species.

Discussion and Conclusion: *Cenchrus pennisetiformis* was identified as the highest livestock preference in Sirik rangeland, Hormozgan province. According to the classification table proposed by Rosiere *et al.* (1975), the species is classified as palatable with a preference index of 1.516. Moreover, *Cenchrus pennisetiformis* was one of the region's low-density and highly consumed species. The second livestock preference in Sirik rangeland was *Cyperus conglomeratus*, whose preference index was found to be 1.338, representing a boundary between the ratio of good food and average good food. The two species were then grouped together in a statistical category. The third preference rank belonged to *Sphaerocoma aucheri* with a value of 0.960, which was a highly distributed and consumed species in the region with the highest dense value. It should be noted that this species plays an essential role in Tali goat's nutrition at the end of the grazing season, i.e., April and May, when the annuals are dried up.

Other preference indices belonged to *Moltkiopsis ciliate* and *Panicum turgidum*, with index values of 0.819 and 0.800, respectively, both of which are classified as moderately palatable species. Moreover, annuals with a preference index of 0.729, including *Stipa capensis*, *Plantago psylium*, *Erucaria hispanica*, *Mathiola longipetala*, *Fagonia bruguieri*, *Anagalis arvensis*, and *Medicago polymorpha* were among the moderately palatable species. However, it should be noted that at the beginning of the grazing season, the livestock tends to graze those plants that are more than one year old, while at the end of the grazing season, when the grasses are dried up or sowed, the one-year-old plants are less favored by the livestock. Finally, the last preference index belonged to *Heliotropium bacciferum* with an index of 0.605, which was classified as an almost non-edible species.

Keywords: Preference Value, Tali Goat, Consumption Percentage, Grazing Behavior.