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## Study of phenological stages effect on nutritive values of twelve species in Hamadan rangelands , Iran

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**Key words** : forage quality , phenological stage , crude protein , acid detergent fiber , dry matter digestibility

**Introduction** Determination of grazing capacity depends on various factors such as forage quality and species nutrient values , and to achieve optimum animal production more information about nutrient value is important and needed (Arzani , H . 1994) .

**Materials and methods** In this trial , nutrient values of twelve species were evaluated , when grazed by Mehraban sheep in two phenological stages (vegetative and mature) in two separate sites (Agh Dagh & Galebor) at Hamadan province . Forage quality indices as Crude protein (CP) , acid detergent fiber (minus Hemicelluloses) (ADF) were accessed , and based on dry matter ; dry matter digestibility (DMD) and metabolisable energy (ME) were also measured .

**Results** According to these results , significant differences were observed among the species and phenological stages for all measured and calculated forage quality factors ( $p < 0.05$ ) (Figure 1 , 2) . Generally , information about forage quality factors is essential for animal nutrition management in rangeland and it should be considered in range and animal management design (Cherney , J.H . et al 1992) .

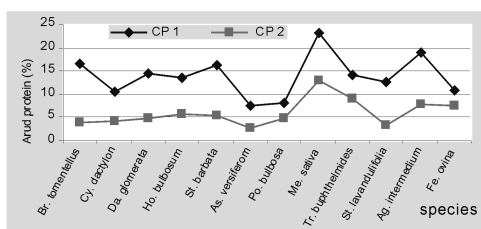


Figure 1 Crude protein percent of twelve species in two phenological stages .

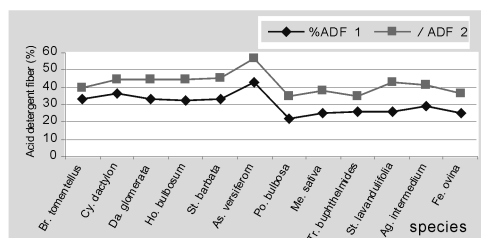


Figure 2 Acid detergent fiber percent of twelve species in two phenological stages .

**Conclusions** Protein is important in the animal's body . Carbohydrate , which are composed of carbon , hydrogen and oxygen , are the basic source of energy for range animals . Actively growing plant parts have much higher protein levels than do those that are dormant . In this study medicago sativa contained highest protein and lowest fiber . Studies by Smite at al (1972) show that the cell wall of legumes digests more quickly than do those of grasses . According to the results , significant differences were observed among the species and phenological stages . Forage nutritive quality on most range varies tremendously between seasons because nutrients translocate from the leaves and stems to crowns and roots with the onset of dormancy . Digestibility varies greatly among species , although leaves and fruits are consistently higher in digestibility than are stems and twigs .

### References

- Arzani , H . , 1994 . Some aspects of estimating short-term and long-term rangeland carrying capacity in the Western Division of New South Wales . *PhD . thesis , University of New South Wales , Australia* . 380 p .  
Cherney J .H and M .H . Hall . , 1992 . *Determinants of Forage Quality* . 150 p .