

Nutritive Value of the Range Legume *Alyosia scarabaeoides* Benth.

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Alyosia scarabaeoides grows in association with grasses in the rangelands (Duthie 1960) and reported to improve the forage quality. Hence, its nutritive value has been studied under different soil types of rangelands.

A. scarabaeoides plants were collected from three sites having Inceptisol (I), Vertisol (II) and Alfisol (III). Above ground edible parts of these plants were analysed for crude protein, hemicellulose, cellulose, lignin, non-acid detergent fibers (NDF) and acid detergent fibers (ADF) following procedures of AOAC (1965) for all the three sites in the first year and for the site I only in the second year. Different plant parts viz., roots, stems, leaves and pod husk were also analysed for crude protein.

Effect of habitat on various parameters (Table 1), show that NDF and ADF varied widely than others. The samples collected from the second year plants showed higher value of lignin, ADF, NDF and cellulose (Table 1). Dry matter digestibility varied between 30 to 52%. The nutritive attributes

(Table 1) indicate its suitability for animal health. Majumdar *et al.* (1978) indicated that in a pasture legume the higher content of NDF and ADF, contributed more for the depression of *in vitro* true dry matter digestibility value whereas crude protein content was not a limiting factor affecting its nutritive value.

The protein and total ash contents in different plant parts (Table 2) indicate higher value in leaves followed by roots and stems in the first year growth while in second year plants it was slightly higher in leaves and roots and lower in the stem by 3.5%. In the leaf litter, crude protein was 13.4 and 16.6 % in first and second year respectively. The crude protein was higher in the husk of ripened fruit than in the green one. In stem crude protein reduced with the advancing stages of maturity. This could be due to increase in lignin and cellulose contents. Similar observations have been made on various tropical legumes by Rai and Kanodia (1980). The P content was maximum in the stem followed by leaves and minimum in roots.

Table 1 Nutritive value (%), *A. scarabaeoides*.

Attributes	Site I		Site II	Site III
	1st year	2nd year		
Crude protein	21.00 ±0.35	21.50 ±0.62	23.38 ±0.35	14.94 ±0.69
Hemicellulose	5.43 ±0.56	9.08 ±1.25	5.40 ±1.03	8.28 ±0.66
Cellulose	29.18 ±0.44	41.20 ±0.91	23.04 ±0.93	34.62 ±0.41
Lignin	8.64 ±1.07	18.94 ±1.15	9.08 ±1.05	15.40 ±1.00
NDF	43.24 ±2.01	69.22 ±1.99	37.58 ±2.29	58.30 ±1.39
ADF	37.81 ±1.66	60.14 ±1.74	32.12 ±2.90	50.02 ±2.06

Table 2 Percentage crude protein, phosphorus and ash in various plant parts of *A. scarabaeoides*.

Attributes	Crude protein		phosphorus	ASH
	1st year	2nd year		
Root	18.00 ±0.37	18.30 ±1.8	0.13	9.18 ±0.15
Stem	14.94 ±0.62	11.25 ±0.78	0.18	6.84 ±0.21
Leaves	23.38 ±0.32	25.63 ±1.5	0.14	12.11 ±0.28
Leaf litter	13.38 ±0.79	16.63 ±0.34	—	—

Reference

- AOAC 1965 *Official Methods of Analysis* (10th Ed.) Association of Official Agricultural Chemists Washington DC.
- Duthie JF 1960 *Flora of Upper Gangetic Plains and of the Adjacent Siwalik Hills and sub-Himalayan Tracts*. Vol.I, BSI, Govt. of India.
- Majumdar AB, Rakib A & Kanodia KC 1978 The effect of chemical attributes on *in vitro* true dry matter digestibility of range legumes grown under nursery and semi wild conditions. *Annul Report*, IGFRI, Jhansi
- Rai P & Kanodia KC 1980 Seasonal variation in forage production and chemical constituents in the tropical legumes under rainfed condition. *Indian Journal of Ecology* 7 268-275

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