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NOTE

Energy and Nutrients of *Iseilema laxum* Hack., A Perennial Grass of Multiple Importance from Ravineland of Chambal Command at Morena (M.P), India

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Iseilema laxum Hack. is a tufted perennial, drought resistant grass frequently appearing in monsoon season on slopy habitat of ravineland in Chambal Command area of Madhya Pradesh, India. This grass is widely used as feed for livestock, especially for horses. It exhibits a peak of 4286.40 cal/g of energy, 14.25% crude protein in November. Highest phosphorus 0.187% in September and 3.70% potassium in August.

Key Words: Energy, Nutrients of *Iseilema laxum* Hack., Morena.

Iseilema laxum Hack. is a tufted grass 2–3 ft high with erect slender culms and linear leaves. The grass appears in monsoon season along the slopy habitat of ravineland in Chambal Command area. Grass is highly nutritive and used as feed for cattle, especially the horses, in green state as well as hay. Here it is also called as Ghorha grass due to being liked by horses. The grass is highly nutritive and energetic in green state before flowering. After flowering in November it shows a declining trend for energy and other nutrients. It is a unique soil binder occurring along slopes of ravines controlling the soil erosion through its tufted roots and dense canopy cover. In dry state it is also used in roof making of country huts by local people.

This communication deals with energy and nutrients of *Iseilema laxum*, a perennial monsoon grass from Chambal Command area at Morena, Madhya Pradesh, India.

Green aerial parts of grass including soft culms and mature and immature spikes were harvested for different months of the year 1999–2000. These samples were washed several times with water, again with 0.2% detergent solution and finally with plenty of water. Samples were air dried and then oven dried at 70°C for 48 h. The dried samples were ground to 0.5 mm sieve. Energy of the samples for different months was estimated using oxygen bomb calorimeter[1]. Nitrogen was estimated by micro-Kjeldahl method[2]. Crude protein (CP) was calculated by multiplying the % nitrogen content with 6.25. Organic carbon was estimated by oxidising the samples with chromic acid and the unconsumed potassiom

dichromate back titrated against ferrous ammonium sulphate, using diphenylamine indicator[3]. Organic matter was calculated by multiplying 1.724 with organic carbon. Phosphorus was estimated by spectrophotometric method under 420 nm blue filter using molybdate-vanadate reagent and potassium was estimated by flame emission method[4].

The energy of the grass ranges between 3762.00 to 4286.40 cal/g (Table-1). Highest energy (4286.40 cal/g) was estimated for October. Total organic matter 68.42% was also highest for October. Highest crude protein 14.25% was estimated for November. Flowering starts in early November and seeds are matured till December. After seed formation energy and nutrients show a declining trend. Lowest energy 3762.00 cal/g was estimated for January. Lowest values of crude protein, total organic matter and phosphorus, 6.12, 65.08 and 0.08% respectively

TABLE-1
ENERGY (cal/g DRY WT.) AND NUTRIENT CONTENT (% DRY WT.) OF *ISEILEMA LAXUM* HACK. DURING THE YEAR 1999–2000.

Months	Energy	Crude protein	Organic matter	Phosphorus	Potassium
August	3819.00	11.68	65.83	0.150	3.70
September	4001.40	12.00	67.09	0.187	1.35
October	4286.40	12.81	68.42	0.130	1.30
November	4263.60	14.25	67.96	0.128	1.15
December	3864.00	10.62	65.94	0.104	1.75
January	3762.00	6.12	65.08	0.080	2.05

were estimated for January. Highest phosphorus was estimated 0.18% for September and highest potassium content 3.7% for August.

Nutritional qualities of *Iseilema laxum* were compared with some important Indian grasses, legumes and other forbs from different parts of the country. *Dichanthium annulatum* exhibited energy range between 3904.3 to 4345.7 cal/g (Table-2). *Digitaria ascendens* and *Sporobolus marginatus* yield comparatively low energy with peak of 3341.9 and 3412.9 cal/g respectively. Among legumes *Alysicarpus monolifer* showed peak of 4627.9 cal/g energy. In this regard *Iseilema laxum* is a better fodder for energy requirement.

Crude protein content was comparatively high 16.25, 18.47, 17.77% in *Cenchrus ciliaris, Pennisetum typhoides* and *Panicum antidotale* respectively (Table-2) . *Iseilema laxum* with highest value 14.25% compares favourably with these protein-rich grasses. Highest phosphorus content 0.42% was recorded in *Panicum antidotale* and 0.166% in *Setaria glauca* (Table-2). *Iseilema laxum* shows medium range of phosphorus. Grass is rich enough in terms of potassium. It can be concluded that *Iseilema laxum* is a good fooder grass *vis-a-vis* it controls

the soil erosion through its tufted roots. Thus it is a grass of high importance for the development of this area.

TABLE-2
ENERGY AND NUTRIENTS OF IMPORTANT INDIAN GRASSES, LEGUMES AND OTHER FORBS COMPARED WITH *ISEILEMA LAXUM*

Grass, Legumes and other forbs	Energy (cal/g)	Crude protein (%)	Phosphorus (%)
1. Punjab grasses[5]			
Cenchrus ciliaris	—	8.81–16.25	—
Pennisetum typhoides	—	18.47	—
2. Maharastra grasses[6]			
Setaria glauca	—	7.94	0. 166
3. Bundelkhand grasses[7]			
Panicum antidotale	—	17.77	0.420
4. Upper Gangetic plains[8]			
Alysicarpus monolifer	4099.4–4212.03	7.0–12.81	—
Digitaria adscendens	3205.5–4341.9	6.12–12.25	—
Sporobolus marginatus	3115.0–3412.9	2.37–12.39	—
5. Lower Gangetic plains[9]			
Alysicarpus monolifer	3725.7–4627.9	9.43–15.0	—
Dichanthium annulatum	3904.3–4345.7	4.06–5.12	—
6. Lower Chambal valley (Present study)			
Iseilema laxum	3762.0–4286.4	6.12–14.25	0.080–0.187

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