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PLANTS FROM THAR DESERT PROVIDE NUTRITION TO IMPROVE CATTLE PRODUCTIVITY

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Abstract: The Indian desert conforented with major problem of increasing live stock at rapid rate. The fodder source are much limited. Animals of the desert land like Goat, Sheep, Camel etc. are fully dependent on these plant species for their fodder. The xerophyte plants of rajasthan are good and potential source of nutritionally and phytochemically important metabolites.

Mineral nutrients are basic building blocks in the synthesis of other complex and useful substences in the cell. A survey of xerophytic flora shows an impressive figure of nutritionally important plants surviving in these adverse climatic conditions. Many of these plants have been worked out for their products both in vivo and in vitro conditions. But still there are some plants, which have not been studied till today.

Keywords: Thar Desert, Phytochemical Metabolites, Live Stock population, Xerophytic Flora

I. INTRODUCTION

The Indian arid tract commonly is known as the "Great Indian Thar Desert" or "Great Indian Sand Desert" Although adverse climatic conditions or harsh environment of this region is very uncomfortable for living being even than it is most densely populated desert of the world. Along with the human population increase, there is steady increase in the live stock population, which totally depends upon the scanty vegetation of Thar desert.

The fodder source are much limited. Foliage and natural endemic vegetation forms the chief source of fuel and fodders. Fodder like Prosopis juliflora Prosopis cinerneria Salvedora persica Acacia Arabica and Delbergia sisso are the good source of the nutritionally and phytochemically rich metabolites. Animals of the desert land like goat, sheep, camel etc. are fully dependent on these plant species for their fodder. Constantly increasing population is putting more pressure on the available land and water resources in this region.

The land use pattern is also constantly under going slow but steady change toward worse. As the pressure on marginal lands is increasing, it is causing over grazing and deforestation. The net effect of such ecological stresses has been an increase in aeolian and alluvial erosion in this region. All these factors affect the flora of desert which shows complicated and diverse phytogeographic pattern with scanty vegetation. A survey of xerophytic flora shows an impressive figure of nutritionally important plants surviving in these adverse climatic conditions. Many of these plants have been worked out for their products both in vivo and in vitro conditions. But still there are some plants, which have not been studied till today. Although these are medicinally important but their nutritional contents have not been estimated.

The nutritive value and composition of some arid zone plants which serve as food and fodder for live stock was reported by Mathur, 1960 and Jayal, 1963 determine the nutritive value of Neem leaves (Azadiracta indica). Leaves of Acacia arabica are excellent fodder and are extensively looped. Prasad, 1964 determine the chemical composition, nutritive value and digestibility value of Babul (Acacia nilotica) and Salvedora species are an excellent fodder and are extensively used for this purpose. Mathur, 1966 reported that the nutritive value of the phog (Calligonum polygonoides) with regar to protein and feveroble, comparable with that of common roughaes which is usually eaten by camel. Sharma et al., 1966, Sen and Ray, 1971 and Pal et al determine that Sares (Albizzia lebbek) is a good source of fooder and its chemical varies with locality and season. Considering all these factors following five plant species of Thar desert were selected for the estimation of nutritive content :-

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Name of Plants	Family
1. Chenopodium album Linn.	Chenopodiaceae
2. Chenopodium murale Linn.	Chenopodiaceae
3. Mollugo cerveana Linn	Molluginaceae
4. Limium indicum Linn.	Molluginaceae

II. MATERIAL AND METHOD

Selected plant species were collected from different area of Bikaner and Jhunjhunu constituting the part of Thar desert. Collected plant species were dried, separated, weighed. 5gm of each plant sample dried in hot air oven for 24 hours then cooled in desiccators till it attained constant weight. For the estimation of chemical constituents of plant species the procedure of A.O.A.C., 1995 was followed. Six samples of each plant parts were taken for mean values.

III. RESULTS

Selected five plant species were analysed for their major nutritive contents like nitrogen free extract (NFE), organic matter (OM), total carbohydrate, calcium (Ca), phosphorus (P), and compared. Among all the plant species NFE (58.63), OM (84.45) and TC (77.80) were calculated maximum in Chenopodium album and minimum NFE (10.02), and TC (25.12) in Limium indicunt where as OM (38.126) in Mollugo cerveana. Chenopodium murale and Gysekia phemacoides showed significent amount of NFE, OM and TC which was near about towards maximum.

Two plant species Mollugo cerveana and Limium indicum have lowest concentration in comprasim to other plant species. As far as Ca and P is concerned highest conc. of Ca was estimated in Gysekia phemacoides and that (3.96) P (3.35) in Mollugo cerveanawhere as lowest percentage of both Ca (84) and P (93) was shown by Chenopodium album. Selected five plant species belongs to two seprate famalies Chenopodiaceae and Molluginaceae.

As far as plants of family Chenopodiaceae are concerened Chenopodium albumand Chenopodium murale have nearly same concentration of all constituents but of family Molluginaceae Mollugo cerveana, Limium indicumand Gysekia phernacoides showed great variation. Gysekia phernacoides is richest among all three. Hence we can canclude that the selected plant species are vary rich nutritionally and provide sufficient amount of nutrients to the live stock population of thar desert and definitly help in increasing their productivity.

S.NO	Name of Plants	Nitrogen Free Extract	Organic Matter	Total carbohydrate	Calcium	Phosphorus
1	*Chenopodium murale*	44.96	84.29	65.06	1.99	1.13
2	*Chenopodium album*	58.63	84.45	77.80	84	93
3	*Mollugo cerveana*	10.10	38.12	25.49	1.84	3.35
4	*Liminum indicum*	10.02	60.74	25.12	2.36	3.4
5	*Gysekia pharnacoites*	47.09	75.34	52.14	3.96	2.19

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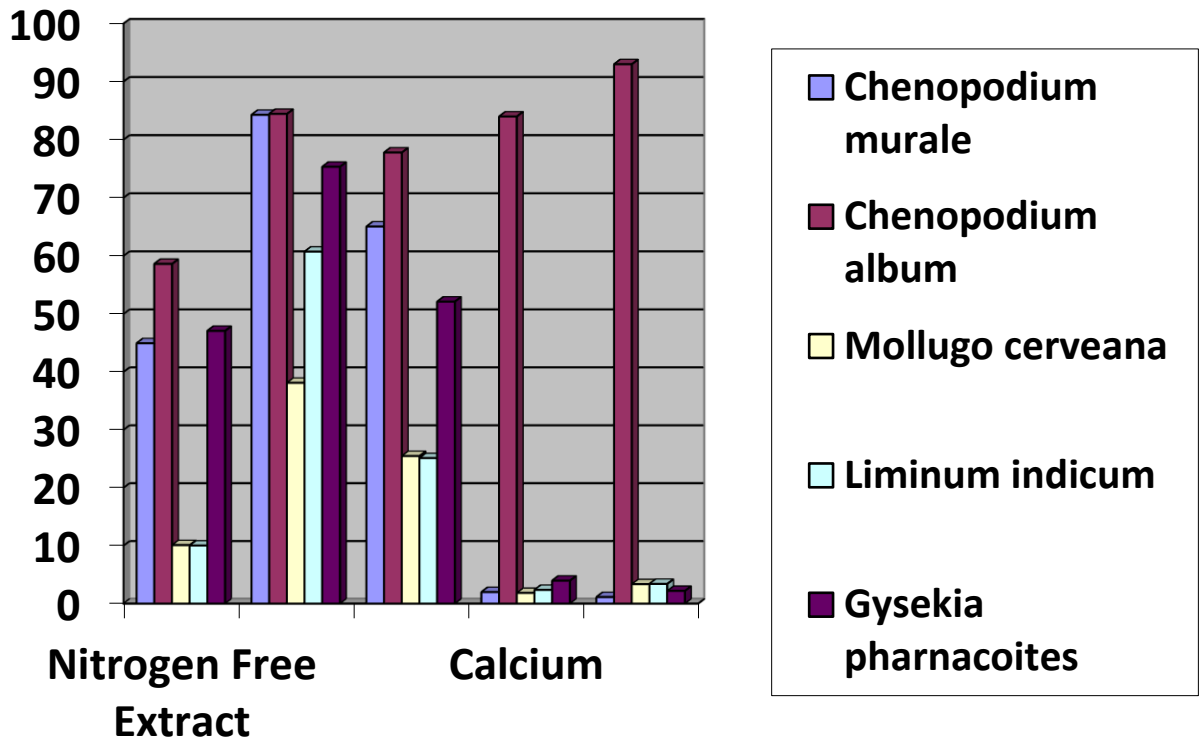

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