Evaluation of forages and soils in different waterlogged saline grasslands in western and southern coastal region of Sri Lanka

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Introduction It is estimated that salinity affected areas in Sri Lanka totals about 19 ,000 ha and its problem occurs in different areas . However ,information on natural forage species and their nutritive quality as animal feeds and the soil characteristics in these lands are lacking . The purpose of this study was to evaluate the nutritive quality of the most common forage species on their and soil characteristics pertaining to salinity in selected locations .

Materials & Methods The study was conducted in five waterlogged saline marshes that are traditionally used for livestock grazing viz ; Kalutara (wet zone) ,Ambalangoda (wet zone) ,Matara (wet zone) ,Tangalle (intermediate zone) and Bundalla (dry zone) along western and southern coastal region from Jan . 2005 to Dec . 2005 . Plant species were sampled along selected radial lines (three or four) in each location during 3 seasons . Dry matter (DM) ,crude protein (CP) ,crude fiber (CF) ,and ash contents were analyzed for most dominant and commonly fed species of the locations . Soils were sampled through the same radial lines in 3 replicates and analyzed for pH ,electrical conductivity (EC) ,NO^{-3}-N ,$Ca^{++}+Mg^{++}$,SO^{-4} ,and Cl^{-1} .

Results & Discussion Out of 52 plant species recorded in the study ,7 species were dominant species and commonly used by animals . A wide variation and significant difference ($P<0.05$) in the nutritive quality were observed among forage species (Table 1) . Soil parameters such as pH ,EC ,$Ca^{++}+Mg^{++}$,SO^{-4} ,and Cl^{-1} levels were significantly different ($P<0.05$) among locations while NO^{-3}-N level was nonsignificant (Table 2) .

Table 1 *Drymatter ,Crude protein ,Crude Fiber and Ash contents in commonly fed forage species* * .

Forage species	DM (%)	CP (%)	CF (%)	Ash (%)
Cynodon dactylon	32 .98^{a}	11 .16^{b}	43 .72^{b}	14 .33^{ab}
Cyperus melanospermus	34 .09^{a}	9 .60^{c}	31 .26^{c}	9 .65^{c}
Eleocharis actangula	27 .30^{ab}	8 .62^{d}	32 .70^{c}	13 .54^{b}
Panicum repens	21 .47^{b}	7 .36^{e}	46 .46^{b}	15 .26^{a}
Panicum psilopodium	29 .19^{ab}	6 .43^{f}	48 .32^{b}	6 .90^{d}
Paspaladium germinatum	26 .28^{ab}	11 .26^{b}	34 .14^{c}	8 .65^{c}
Sacciolepis interapta	18 .08^{c}	15 .14^{a}	69 .28^{a}	13 .87^{b}
SEM	0 .90	0 .06	0 .02	0 .06

Table 2 *Soil pH ,EC ,NO^{-3}-N ,$Ca^{++}+Mg^{++}$,SO^{-4} and CL^{-1} levels in experimental locations* * .

Location	pH	EC (μS/cm)	NO^{-3}-N (ppm)	$Ca^{++}+Mg^{++}$ (ppm)	SO^{-4} (ppm)	Cl^{-1} (ppm)
Kalutara	4 .9^{c}	652^{cd}	7	396^{d}	29^{d}	125^{d}
Ambalangoda	4 .0^{c}	4734^{b}	8	1675^{c}	610^{b}	525^{c}
Matara	3 .4^{d}	982^{d}	6	400^{d}	987^{a}	200^{d}
Tangalle	6 .5^{b}	2228^{c}	12	3500^{b}	175^{c}	675^{b}
Bundala	7 .7^{a}	7250^{a}	11	8250^{a}	1225^{a}	837^{a}
SEM	0 .1	27	0 .8	182	35	15

SEM = Standard error of Mean . Means within a column having same superscript is not different ($P<0.05$)
* Mean values of 3 sampling seasons

Diversity of soil status pertaining to salinity seemed to be due to tide ,topography ,and drainage behaviors of the locations .

Conclusion There is a potential for plant species that are naturally grown in waterlogged saline grasslands in coastal region of Sri Lanka to be utilized in livestock feeding .