

Species Diversity and Nutritional Content of the Natural Forage Sources for Buffaloes in the Parkphanung Basin, Southern Thailand

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Summary

The research was conducted to survey the species and to evaluate the nutritional content of natural forage for buffaloes in four districts (Chian-Yai, Hou-Trai and Cha-oud of Nakhonsithammrat province and Ranode of Songkhla province) in the Parkphanung basin. The surveys were undertaken during October to November 2004. The names of the natural forage species that the buffaloes used as their common feed, obtained from the buffalo holders were collected and summarized. The samples of all forage species were collected for chemical analysis. It was found that only 15 species of the natural forage were used as their common feed. When the top ten preference species of forage were used for the chemical analysis, it was found that the crude protein (CP) content varied from 3.97-15.47%. The neutral detergent fiber (NDF) ranged from 61.05 - 81.45%. The acid detergent fiber (ADF) differed from 36.38 - 60.08%. The lignin content (ADL) varied from 5.58 - 16.88%. The research results imply that the diversity in both of the species and the chemical compositions are the crucial tools for management on the utilization and conservation of the natural forage for buffaloes in the sustainable way.

Keywords: Parkphanung basin, buffaloes, forage, diversity, nutritional content

Introduction

Not until 1962, the Parkphanung basin was named as the golden land of southern Thailand due to its suitability for rice plantation. After the great typhoon in 1962, thousands of people emigrated outside the area to other part of the region. During the last 40 years, this area was known as one of the poorest areas in Thailand due to the lack of any subsidies from the government. His majestic King Bhumipol, might be only a single people, who knows the best in every area of his land, has kept in mind that this area should remain the golden land for agriculture if it had been managed in the right order. Hundreds of projects were implemented to this area for eliminating the poverty of the people through his projects. Buffalo raising is one of the most popular careers of the farmers who remain dwelling in this region. The production system of the farmer is unique. Low cost investment was the preference policy for buffalo raising. Drugs, feed supplement, additives and other input materials were limited. The knowledge on nutritional content and availability of forage that the buffalo use as their feed are deficit. Therefore, the research was designed to survey the species and to evaluate the nutritional content of natural forage for buffalo in this area.

Materials and Methods

1. Data collection materials. Interviewing the farmers who have buffaloes in their belonging using the questionnaires had been undertaken for collections of data on 18th October and on 21st November 2004. Thirteen prominent farmers who were interested in grass species that their buffaloes use as feed were previously determined for sources of information.

2. Grass sample collection. The 50 x 50-cm metal quadrat were used for forage sample collection. The main grass species for each sampling point were identified and used for chemical analysis.
3. Photo collection instrument. The Sony® cyber-shot, MPEGMOVIE VX Smart zoom DSC -P72 digital camera was used for taking the picture of grasses.
4. Laboratory equipment. The crude protein (Naumann and Bassler, 1983) determination instrument consisting of digester unit (DK6 digester) and distillation unit (UDK 126A) of Velp Scientifica® and the refluxing fiber digestion apparatus for cell wall content (Goering and Van Soest, 1970) determination were used for chemical analyses.

Results and Discussion

Names and chemical compositions of grass species that the buffaloes use as their feed in each location were shown in table 1. It is clearly indicated that grass species for buffaloes varied between the location. Only the *Echinochloa crusgalli*, *Eleocharis ochrostachys* and *Ischaemum aristatum* can be found in all locations. Some grasses species are specific for buffalo's feed in some specific location, such as *Dactyloctenium aegyptium*, *Oryza rufipogon* and Rung-khai grass, which are *specific* for Ranode district. Too-car grass, Khon-Khwang grass and *Fimbristylis miliacea* are unique for Chian-Yai district. Due to the higher crude protein content for *Hymenachne pseudointerrupta*, *Paspalum distichum* and *Eleocharis ochrostachys*, respectively, might stimulate us to scrutinize their quality by other means of the evaluation. The cell wall contents of all grass species were higher than that of other common grasses.

Table 1. Grass species for buffalo in the Parkphanung basin and their chemical compositions.

Surveying location (District)	<i>Echinochloa crusgalli</i>	<i>Dactyloctenium aegyptium</i>	<i>Paspalum distichum</i>	<i>Oryza rufipogon</i>	<i>Hymenachne pseudointerrupta</i>	<i>Panicum repens</i>	<i>Zoysia spp</i>	<i>Typha angustifolia</i> L	<i>Eleocharis ochrostachys</i>	<i>Fimbristylis miliacea</i>	<i>Ischaemum aristatum</i>	Ya-Nam-Phueng	Ya-Khon-Khwang	Ya-Too-car	Ya-Rung-Khai
Chian-Yai	+				+	+		+	+	+	+	+	+	+	
Hua Tri	+		+			+		+	+		+	+			
Cha-aoud	+		+				+	+	+		+	+			
Ranode	+	+		+	+	+	+		+		+				+
Chemical composition (%DM basis)															
CP	7.42	6.52	12.98	4.91	15.43	6.22	10.87	4.16	12.16	3.97	NA	NA	NA	NA	NA
NDF	81.45	81.00	77.02	76.91	76.64	75.65	75.22	73.03	72.81	61.01	NA	NA	NA	NA	NA
ADF	60.08	41.64	36.38	43.16	40.70	42.76	37.71	48.20	44.68	43.63	NA	NA	NA	NA	NA
ADL	6.73	6.67	9.71	5.90	16.88	11.18	14.90	9.18	5.58	6.54	NA	NA	NA	NA	NA

References

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