ສຶກສາອົງປະກອບທາງເຄມີຂອງວັດຖຸດິບອາຫານສັດ ໃນເຂດພາກກາງ ຂອງ ສ.ປ.ປ. ລາວ: ນະຄອນຫຼວງວຽງຈັນ

ວຽງສະກຸນ ນາປະເສີດ[1] ແລະ ບຸນເລີດ ສີວິໄລ[1]

ບົດຄັດຫຍໍ້

ການສຶກສາຄັ້ງນີ້ ມີຈຸດປະສົງຫຼັກ ເພື່ອເນັ້ນໜັກການສຶກສາອົງປະກອບທາງເຄມີ ທີ່ບັນຈຸຢູ່ພາຍໃນບັນດາວັດຖຸດິບອາຫານສັດ ໃນເຂດນະຄອນຫຼວງ. ໃນນີ້ ມີຕົວຢ່າງວັດຖຸດິບອາຫານສັດທັງໝົດ 24 ຊະນິດ ໂດຍຈັດແບ່ງອອກເປັນ 3 ກຸ່ມ ໄດ້ແກ່: ກຸ່ມອາຫານຫຍາບ ປະກອບດ້ວຍຫຍ້າ 15 ຊະນິດ: Ruzi (Brachiria ruzziziensis), Signal (Brachiria decumbens), Paspalum (Puspalum Atratum), Guinea (Panicum maximum), Napier (Pennisetum purpureum), Brizanta (Brachiria brizantha), ຫຍ້າຄາ ຫຼື Cogon (Imperata cylindrica), ຫຍ້າຍຸງກວາງ (Schizachyrium brevifolium), ຫຍ້າແຝດ (Axonopus compressus), ຫຍ້າຄັດມອນຂາວ, ຫຍ້າຄັດມອນແດງ, ຫຍ້າຍຸງເຄືອ (Digitaria setigera), ຫຍ້າໄຊ (Isachne hexandra), ຫຍ້າຍຸງນ້ອຍ (Microstegium ciliatum) ແລະ ຫຍ້າເລົ້າ (Miscanthus floridulus). ກຸ່ມອາຫານໃຫ້ພະລັງງານ ໄດ້ແກ່: ເຂົ້າປຸ້ນ, ຮຳເຂົ້າ ແລະ ມັນຕົ້ນບົດ ແລະ ກຸ່ມອາຫານໃຫ້ທາດຊີ້ນ ປະກອບດ້ວຍ 6 ວັດຖຸດິບ ໄດ້ແກ່: ໃບມັນຕົ້ນແຫ້ງ (Manihot esculenta Crantz), ໃບທອງ (Erythrina suburnbrans), ຖົ່ວ Stylo (Stylosanthes guianensis), ເຄືອຂີ້ປາຈາດ, ເຄືອຂີ້ເດື່ອ ແລະ ໃບກະຖິນ (Luecaena luecocephala). ຜົນການທົດລອງຄັ້ງນີ້ ພົບວ່າ ມີອົງປະກອບທາດຊີ້ນ 7.13, 5.26, 7.39, 12.75, 9.95, 6.57, 8.68, 13.94, 17.75, 22.94, 18.75, 20.63, 9.69, 25.00 and 13.13% ຕາມລຳດັບ, ໃນກຸ່ມພະລັງງານ ມີທາດຊີ້ນຢັນຈຸຢູ່ 8.19, 7.76, 2.26% ຕາມລຳດັບ ແລະ ກຸ່ມອາຫານໃຫ້ທາດຊີ້ນ ປະກອບມີທາດຊີ້ນ: 24.23, 21.10, 20.25, 27.81, 21.69 27.63% ຕາມລຳດັບ.

ຄຳສັບທີ່ສຳຄັນ: *ວັດຖຸດິບອາຫານສັດ, ອົງປະກອບທາງເຄມີ, ແຫຼ່ງອາຫານຫຍາບ, ແຫຼ່ງອາຫານພະລັງງານ, ວັດຖຸດິບອາຫານສັດ, ແຫຼ່ງອາຫານທາດຊີ້ນ.*

[1]ພາກວິຊາວິທະຍາສາດລ້ຽງສັດ ແລະ ການປະມົງ, ຄະນະກະເສດສາດ, ມະຫາວິທະຍາໄລແຫ່ງຊາດ, ຕູ້ ປ.ນ: 7322, ນະຄອນຫຼວງວຽງຈັນ, ສ.ປ.ປ. ລາວ

THE STUDY OF CHEMICAL COMPOSITION OF ANIMAL FEED RESOURCE IN CENTRAL LAO PDR: *VIENTIANE CAPITAL*

Viengsakoun Napasirth[1] and Bounlirth sivilay[1]

Abstract

The objectives of this study were emphasis on chemical contain in feed stuff in Vientiane capital. There are 24 feed stuffs and separate in to 3 groups: the first group is roughage source there are 15 feeds: Ruzi (Brachiria ruzziziensis), Signal (Brachiria decumbens), Paspalum (Puspalum Atratum), Guinea (Panicum maximum), Napier (Pennisetum purpureum), Brizanta (Brachiria brizantha), Cogon (Imperata cylindrica), Yungkuang (Schizachyrium brevifolium), Phat (Axonopus compressus), Khatmon, Khatmondeang, Yungkhua (Digitaria setigera), Say (Isachne hexandra), Yungnoy (Microstegium ciliatum) and Loa (Miscanthus floridulus). The second group is energy source there are 3 feeds: broken rice, rice brand and cassava chip (Manihot esculenta Crantz) and the thirst group is protein source there are 6 feeds: Cassava leaves, Erythrina leaves (Erythrina suburnbrans), Stylo (Stylosanthes guianensis), khipachat, Khidue and Leucaena leaves (Luecaena luecocephala). It was found that the roughage group there are crude protein: 7.13, 5.26, 7.39, 12.75, 9.95, 6.57, 8.68, 13.94, 17.75, 22.94, 18.75, 20.63, 9.69, 25.00 and 13.13% CP respectively. The crude protein contain of energy group are 8.19, 7.76, 2.26% CP respectively and the crude protein contain in protein group are 24.23, 21.10, 20.25, 27.81, 21.69 and 27.63 respectively.

Key words: *Feedstuffs, Chemical composition. Roughage source, Energy source, Protein source.*

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Introduction

Feed is importance for animal production that include 60 – 70 % of total cost for animal production, product from the animal such as meat, milk, and eggs demand from domestic consumption and exportation (FAO, 2001). In Lao PDR. also increase demand source of protein. The main of protein source in Laos from the cattle production because farmer they have reared as long as. But cattle production system in Lao raised with free range depend on the natural grass forage and agricultural by-product; there are many source of feed for animal production in Laos especially for ruminant animal. Feed that important for the animal production system. Now a day, Laos is leak the feed information system especially the feed chemical composition, feed value or feed quality that slowly develops.

Materials and Methods

Feedstuffs sample preparation and chemical analysis

Twenty four of feed stuffs sample were collected from Vientiane Capital in the central Lao P.D.R. All of sample were ground through a 1 mm screen and determine chemical composition include dry matter (DM), Ash, crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF) and Total digestible nutrient (TDN) (AOAC, 1984; Chhay Ty and Julio Ly, 2001; Van Soest et al., 1991;), This part the sample were divided into three groups base on the source of feedstuffs. The first: roughage source there are ruzi, signal, paspalum, guinea, napeir, brizanta, cogon, youngkhuang, phat, khatmon, khatmon red, youngkhuet, say, youngnoy and loang grass. The second: energy source: Broken rice, Rice bran and cassava root. The third: protein feed source there are Cassava leaves, Erythrina leaves, Stylosanthes, khipachat, khidue and Leuceana leaves.

Results and Discussion

Chemical composition of feed

The result of chemical composition of the roughage group are shown that of protein of ruzi, signal, paspalum, guinea, napeir, brizanta, cogon, youngkhuang, phat, khatmon, khatmon red, youngkhuet, say, youngnoy and loang grass is 7.13, 5.26, 7.39, 12,75, 9.95, 6.57, 8.68, 13.94, 17.75, 22.94, 18.75, 20.63, 9.69, 25.00 and 13.13 % respectively. Kha grass is highest of NDF and Khatmon is lowest of NDF (83.02, 44.04 %); percentage of TDN of ruzi grass is highest (60.01 %).

Table 1: Chemical composition of roughage group

N	Feed stuffs	DM (%)	Chemical composition (%)					
			Ash	OM	CP	NDF	ADF	TDN
			.....%DM basic					
1	Ruzi	25.76	13.66	86.34	7.13	65.54	37.31	60.01
2	Signal	29.29	13.44	86.56	5.26	72.47	39.62	57.38
3	Paspalum	21.53	4.81	95.19	7.39	69.68	39.18	57.88
4	Guinea	37.88	4.72	95.28	12.75	74.40	45.20	51.01
5	Napier	28.23	5.72	94.28	9.95	74.56	41.82	54.87
6	Brizanta	28.23	15.21	84.79	6.57	49.21	39.65	57.34
7	Cogon	43.31	5.68	94.32	8.68	83.02	44.62	51.68
8	Youngkuang	18.04	2.24	97.76	13.94	66.93	47.33	48.58
9	Phat	18.78	2.03	97.97	17.75	71.49	47.50	48.40
10	Khatmon	19.70	2.10	97.90	22.94	64.30	64.41	29.11
11	Khatmondeang	18.78	2.53	97.47	18.75	44.40	38.67	58.46
12	Yungkhua	17.28	2.71	97.29	20.63	66.94	42.08	54.57
13	Say	34.07	4.26	95.74	9.69	71.17	44.55	51.76
14	Yungnoy	26.29	3.63	96.37	25.00	71.34	45.04	51.19
15	Loa	34.43	1.98	98.02	13.13	81.46	61.31	32.64

DM=dry matter, CP= crude protein, NDF= neutral detergent fiber, ADF= acid detergent fiber, OM= organic meter, TDN= total digestible nutrient.

The chemical composition in table 2 show that the crude protein of broken rice higher than rice bran and cassava chip (8.19, 7.76 and 2.26 % respectively). %CP of broken rice is higher than reported by Department of livestock, 2006 (7.74 %CP), but lower than NRC, 1994; Vonchanthra, S., 2003; Napasirth et al. 2007, (11.00, 8.63, and 10.19 %CP, respectively), %CP rice brand lower than reported by Napasirth et al. 2005, Charcharern, S., 2004 (11.05 and 11.09 %CP), but higher than Department of livestock, 2006, Champawadee, S., 2002 (6.80, 7.10 %CP respectively), %CP cassava chip higher than reported by Department of livestock, 2006 (2.21 %CP).

Table 2: Chemical composition of energy group

N	Feed stuffs	DM (%)	Chemical composition (%)				
			Ash	OM	CP	NDF	ADF
			.....% DM basic				
1	Broken rice	90.00	2.01	97.99	8.19	28.34	0.70
2	Rice bran	89.50	18.14	77.86	7.76	49.62	40.36
3	Cassava chip	88.00	3.70	96.30	2.26	12.00	5.50

DM=dry matter, CP= crude protein, NDF= neutral detergent fiber, ADF= acid detergent fiber, OM= organic meter.

The information in table 3 shown that the chemical composition of protein group there are %CP of cassava leaves, erythina leaves stylo, khipachat, khidue and luecaena leaves: 24.23, 21.11, 20.25, 27.81, 21.69 and 27.63 respectively. According to Department of livestock, 2006; Napasirth et al., 2007, and M. Wannapat, 1990 reported the %CP of cassava leaves around 21.77, 25.23 and 24.70 %, respectively. And %CP of luecaena leaves, erythrina leaves and stylo around 26.70, 22.11 and 21.25 %, respectively (Wannapat, M., 1990; Napasirth, V., et al., 2007).

Table 3: Chemical composition of protein group

No.	Feed stuffs	DM (%)	Chemical composition (%)					
			Ash	OM	CP	NDF	ADF	TDN
			.....% DM basic					
1	Cassava leaves	25.43	9.78	90.22	24.23	52.67	40.06	55.84
2	Erythrina leaves	19.05	12.61	87.39	21.10	62.21	41.47	54.33
3	Stylo	29.02	3.51	96.49	20.25	51.32	41.38	54.43
4	Khipachat	19.93	2.51	97.49	27.81	44.27	37.73	59.53
5	Khidue	22.55	2.06	97.94	21.69	58.25	42.54	54.04
6	Leucaena leaves	27.95	6.97	98.03	27.63	50.07	44.14	52.22

DM=dry matter, CP= crude protein, NDF= neutral detergent fiber, ADF= acid detergent fiber, OM= organic meter, TDN= total digestible nutrient.

Conclusion

According to results crude protein of roughage group the highest is 25.00 % (Yungnoy grass), lowest is 5.26 % (Signal grass) and an average crude protein 13.30 %. Crude protein of energy group the highest is 8.19 % (broken rice), lowest is 2.26 % (cassava chip) and an average crude protein 6.07 %. And Crude protein of protein group the highest is 27.63 % (leucaena leaves), lowest is 20.25 % (stylo) and an average crude protein 23.78 %.

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