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The Addition of Potato Biscuit in the Feed of Sumatran Slow Loris (*Nycticebus coucang* Boddaert, 1785) and Javan Slow Loris (*Nycticebus javanicus* Geoffroy, 1812): The effects on Digestibility and Feed Efficiency
[Penambahan Biskuit Kentang dalam Pakan Kukang Sumatera (*Nycticebus coucang* Boddaert, 1785) dan Kukang Jawa (*Nycticebus javanicus* Geoffroy, 1812) : Pengaruhnya Terhadap Kecernaan dan Efisiensi Penggunaan Pakan]

Wartika Rosa Farida[1), Andri Permata Sari[1), &Wulansih Dwi Astuti[2)

[1)Research Center for Biology - LIPI, [2)Research Center for Biotechnology – LIPI
Cibinong Science Center, Jl. Raya Jakarta-Bogor KM 46, Cibinong 16911
E-mail: wrfarida@indo.net.id

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ABSTRACT

This experiment aims to determine the effect of the addition of potato biscuit on digestibility and feed efficiency in Sumatran slow loris (*Nycticebus coucang*). Research has been conducted on Small Mammals Captivity Breeding of Zoology Division, Research Center for Biology - LIPI for 66 days consisting of a 10 days adaptation period of feed and 56 days (8 weeks) data collection period. The material used is four Sumatran slow lorises (*N. coucang*) and two Javan slow lorises (*N. javanicus*). Feed given during the study are banana, papaya, dragon fruit, guava, passion fruit, boiled sweet potato, boiled egg potato biscuits, crickets, and meal worm. Feed treatment to Sumatran slow loris consisting of feed control (T0) and T0 plus potato biscuits (T1), while Javan slow loris was only fed T1 as a comparison. Parameters measured were consumption, digestibility, and feed efficiency. The most palatable feed types for Sumatran slow loris and Javan slow loris are banana, cricket, and meal worm. Mean of feed intake at T0 and T1 treatment was 38.63 and 37.42 g / head / day, and that of Javan slow loris is 42.51 g / head / day. Mean of dry matter digestibility of Javan slow loris> T1> T0, namely 92.02%, 91.21%, and 88.95% respectively; whereas the highest average feed efficiency (EPP) is at 12.06% for Sumatran Slow loris and 9.10% in Javan slow loris. The average of total digestible nutrients (TDN) of Javan slow loris> T1> T0, namely 87.04%, 85.34%, and 83.54% respectively.

Keywords: consumption, digestibility, feed utilization, *Nycticebus coucang, Nycticebus javanicus*

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan biskuit kentang terhadap kecernaan dan efisiensi penggunaan pakan pada kukang sumatera (*Nycticebus coucang*). Penelitian telah dilakukan di Penangkaran Mamalia Kecil Bidang Zoologi, Pusat Penelitian Biologi – LIPI selama 66 hari yang terdiri dari 10 hari masa adaptasi pakan dan 56 hari (8 minggu) masa pengumpulan data. Materi yang digunakan adalah empat ekor kukang Sumatera dan dua ekor kukang Jawa (*N. javanicus*) sebagai pembanding. Pakan yang diberikan selama penelitian adalah Pisang ambon, pepaya, apel, jambu biji, markisa, ubi jalar, putih telur rebus, biskuit kentang, jangkrik, dan ulat hongkong. Perlakuan pakan pada kukang sumatera terdiri dari pakan kontrol (T0) dan pakan dengan penambahan biskuit kentang (T1), sedangkan kukang jawa hanya diberi pakan T1 sebagai pembanding. Parameter yang diamati adalah konsumsi, kecernaan, dan efisiensi penggunaan pakan. Jenis pakan yang paling palatabel bagi kukang sumatera dan kukang jawa adalah pisang, jangkrik, dan ulat hongkong Rataan konsumsi pakan pada perlakuan T0 dan T1 adalah 38,63 dan 37,42 g/ekor/hari, dan pada kukang jawa 42,51 g/ekor/hari. Rataan kecernaan bahan kering kukang jawa>T1>T0 masing-masing 92,02%, 91,21%, dan 88,95%; sedangkan rataan efisiensi penggunaan pakan (EPP) tertinggi pada kukang sumatera adalah 12,06% dan 9,10% pada kukang jawa. Rataan *Total digestible nutrien* (TDN) kukang jawa>T1>T0 masing0masing 87,04%, 85,34%, dan 83,54%.

Kata kunci: Konsumsi, kecernaan, *feed utilization*, *Nycticebus coucang, Nycticebus javanicus*

INTRODUCTION

Slow loris is a nocturnal primate, and in Indonesia there are three types, namely Sumatran slow loris (*Nycticebus coucang*), Javan slow loris (*N. javanicus*), and Bornean slow loris (*N. menagensis*). One of the activities carried out by these animals to meet their food needs are gouging the wooden rod to get the plant exudates. They are also able to consume the insects to get secondary compounds. As also reported by Wiens *et al*. (2006) who obtain such activities in *N. coucang*, Nekaris *et al*. (2010) in *N. javanicus*, and Nekaris and Munds (2010) in *N. menagensis*. Other types of natural feed of slow loris are nectar and fruits, while according to Napier and Napier (1967), in its habitat, this animal also consumes grains, insects, bird eggs, lizards and small mammals. Fitch-Snyder *et al.* (2001) reported slow lorises in captivity are usually fed fruits, vegetables, and insects. Fulfilling the needs of the slow loris for liquids plant / gum is done by performing captivity environmental enrichment (Craig & Reed 2003).

Hunting of these animals from the wild which is done continuously, plus the reduction in their habitat, resulting in slow lorises become endangered wildlife and given protected status in Indonesia. In fact, since 2007, slow lorises are included in Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), which means that these animals are not allowed to be traded. Utilization of slow lorises are as pet animals and medicinal materials.

One of the efforts to save the slow loris is through *ex situ* conservation or breeding. In the efforts to meet the nutritional need of slow loris, the present study tried out the addition of potato biscuits into the feed of Sumatran slow loris and Javan slow loris, to determine their effects on digestibility and feed efficiency.

MATERIALS AND METHODS

This research has been conducted in Research Facility of Small Mammals Captivity, Research Center for Biology - LIPI, Cibinong, Bogor Regency. The study lasted for 66 days consisted of a 10-day adaptation period (preliminary) and 8 weeks (56 days) period of data collection.

The research material consisted of four Sumatran slow lorises aged 10-12 months and two Javan slow lorises aged 8 months as a comparison against the treatment of the addition of potato biscuits in the ration. During the study, each slow loris was placed in an individual cage measuring 2.25 m long, 2.25 m wide and 2.50 m high, with concrete floor and bars wall coated with locket wire.

The cage is equipped with box-bed made of plywood, feed container, drinking water container, and insects container. Inside the enclosure there are also bamboo or wood poles which are placed cross, plus an artificial tree of 2 m height and pieces of bamboo trees and leaves as a place for slow lorises making activities.

Temperature and humidity are recorded every day in the morning (06.00 am), afternoon (17:00 pm), and evening (00:00 pm), in order to determine the effect of temperature and humidity on feed consumption of slow lorises.

Before being served, all the feed material is washed, cut into pieces, and each kind of feed weighed. The feeding is done in the afternoon at 17.30 pm because slow lorises are nocturnal animals which are active at night (Brandon-Jones *et al.* 2004). The remaining feed was weighed on the following day. Drinking water is provided *ad libitum.* The composition of the feed-study materials are given in Table 1.

Table 1. Feed Composition for Sumatran and Javan slow loris

Food item	T0	T1
	(g / head / day)	
Banana (*Musa* sp.)	70	72
Papaya (*Carica papaya*)	10	10
Red dragon fruit (*Hylocereus undatus*)	10	10
Guava (*Psidium guayava*)	5	5
Passion fruit (*Passiflora edulio*)	10	10
Melon (*Cucumis melo*)	10	10
Boiled sweet potato (*Ipomoea batatas*)	10	-
Boiled white egg	8	8
Potato biscuit*)	-	8
Cricket	10	10
Mealworm	7	7

*) Potato starch, flour, sugar, honey, eggs, omega 3, vitamins (A, B1, B2, B12, C, D, E, niacin folate) and minerals (iron, calcium, zinc)

Table 2. Organic matter and nutrient content of feed

Food item	DM	OM	Ash	CP	CL	CF	NFE	GE
	(%)	----------(100% DM)----------						(cal/g)
Banana	26.25	96.54	3.46	6.35	0.73	6.00	83.46	4074.38
Papaya	13.80	96.27	3.73	4.76	0.71	5.17	85.63	3928.40
Red dragon fruit	14.72	95.96	4.04	10.22	5.68	16.44	63.61	4436.59
Guava	28.63	95.73	4.27	1.62	4.75	34.18	55.18	4649.00
Passion fruit	30.82	95.06	4.94	12.39	12.51	38.27	31.89	5451.18
Melon	7.87	89.18	10.82	10.56	0.95	6.78	70.89	4303.97
Boiled sweet potato	22.32	96.84	3.16	4.05	0.98	5.47	86.34	3577.00
Boiled white egg	14.68	94.42	5.58	26.00	0.36	0.33	67.73	5384.37
Potato biscuit	98.64	99.67	0.33	1.59	1.27	2.56	94.25	4051.81
Cricket	70.94	95.07	4.93	60.96	22.23	11.47	0.41	4914.32
Mealworm	60.40	89.41	10.59	64.68	24.22	0.51	0.01	4787.26

DM = dry matter; OM = organic matter: CP = crude protein; CL = crude lipid; CF = crude fiber NFE = nitrogen free extract; GE = gross energy
*) Laboratory of Nutrition Testing, Research Center for Biology – LIPI (2014)

Each slow lorises were weighed at the beginning and end of the study to determine the weight gain. Measurement of feed digestibility in slow loris is performed in vivo by total feces collection method (Tillman *et al*. 1991). Feces was collected and weighed daily, then placed in sealed plastic bag and stored in a freezer for later analyzed in the laboratory.

Dry matter and nutrients contained in the feed and feces of slow loris were analyzed by standard procedures of AOAC (1995) while the total energy is analyzed based on the method of Analytical Methods for Oxygen Bombs No. 207M (1995). Analysis were performed at the Laboratory of Nutrition Testing, Research Center for Biology - LIPI, Cibinong. Table 2 shows the content of dry matter and nutrients in the feed of slow lorises.

The variables measured were feed and nutrient intake, digestibility, body weight gain, and feed conversion (feed efficiency). The data obtained were processed in the form of tables or graphs for later described in sentences and at the same time drawn a conclusion of the study (Steel & Torrie 1993).

RESULTS

Environmental factors that directly influence the consumption of wildlife include temperature, humidity (RH) and sunlight (Parakkasi 1999). The temperature average around captivity in the morning at 06:00 was 23.52 ± 1.16^{0}C with humidity average of 92.65 ± 4.77%; in the afternoon at 17:00 was 29,54 ± 1.27^{0}C with humidity average of 72.48 ± 6.98%, and in the night at 00:00 temperature average was 25.35 ± 1.44^{0}C with humidity average of 89.12 ± 5.71%. Level of preferences (palatability) to the feed types of Sumatran slow loris and Javan slow loris looks different in amount average of feed consumed (Figure 1).

Feed intake is important in meeting the needs of animals, both for basic living and production. The average consumption of fresh matter, dry matter, nutrients, and energy in Sumatran and Javan slow loris is presented in Table 3.

Measurement of digestibility is an attempt to determine the amount of nutrient contained in feedstuff absorbed in the digestive tract (Bayutriana 1995). Digestibility is often expressed with the dry matter and as a digestibility coefficient or percentage (Parakkasi 1999). Digestibility coefficients of dry matter and nutrient of Sumatran and Javan slow lorises are listed in Table 4.

DISCUSSION

Most type of feed consumed both by Sumatran slow loris and Javan slow loris are bananas, crickets, and mealworm (Figure 1). Banana has a sweet taste, soft texture, and fragrant scent, while crickets and mealworms are their feed in their habitat. As reported by Nekaris & Bearder (2007), in the wild slow loris eat fruit, flowers, nectar, sap, flower liquid or plant

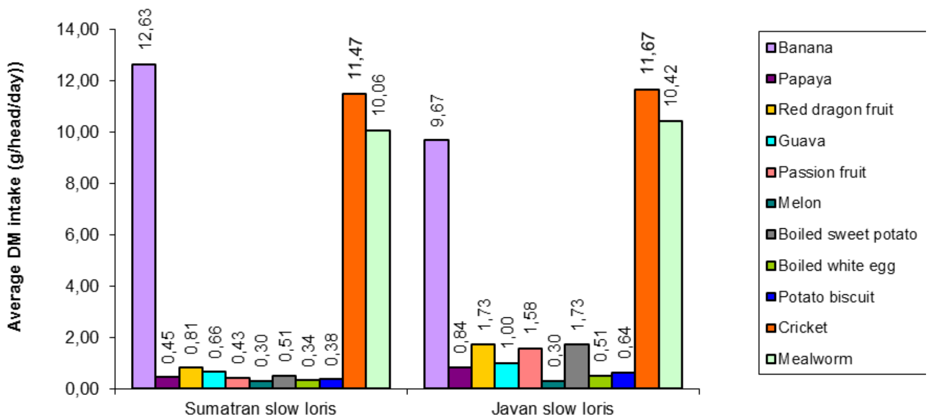

Figure 1. Feed palatability of Sumatran and Javan slow loris

Table 3. Average of FM, DM, and nutrient on Sumatran and Javan slow loris

Nutrien	Sumatran slow loris						Javan slow loris		
	T0			T1			T1		
	1	2	Average	1	2	Average	1	2	Average
(g/head/day)									
FM	110.63	99.64	105.14	98.51	99.97	99.24	129.75	112.68	121.22
DM	38.82	38.44	38.63	36.95	37.90	37.42	44.94	40.08	42.51
OM	36.61	36.20	36.41	34.75	35.64	35.20	42.42	37.74	40.08
Ash	2.21	2.24	2.23	2.20	2.26	2.23	2.51	2.34	2.43
CP	14.37	14.98	14.68	14.09	15.01	14.55	15.63	15.14	15.38
CL	5.15	5.37	5.26	5.01	5.38	5.19	5.60	5.57	5.58
CF	3.40	2.97	3.18	2.67	2.52	2.59	3.42	3.38	3.40
NFE	15.71	14.10	14.91	13.18	13.13	13.15	17.77	13.65	15.71
GE (cal/head/day)	1932.76	1763.62	1848.19	1749.45	1679.10	1714.27	2028.99	1836.53	1932.76
(% DM)									
OM	94.31	94.17	94.24	94.05	94.04	94.05	94.41	94.15	94.28
Ash	5.69	5.83	5.76	5.95	5.96	5.95	5.59	5.85	5.72
CP	37.02	38.97	38.00	38.14	39.60	38.87	34.78	37.77	36.27
CL	13.27	13.96	13.62	13.56	14.18	13.87	12.47	13.89	13.18
CF	8.75	7.73	8.24	7.22	6.64	6.93	7.60	8.42	8.01
NFE	40.46	36.68	38.57	35.66	34.63	35.15	39.54	34.05	36.80
GE (cal/100 g DM)	750.32	678.00	714.16	646.39	636.37	641.38	911.79	736.12	823.95

FM = fresh matter, DM = dry matter; OM = organic matter: CP = crude protein; CL = crude lipid; CF = crude fiber NFE = nitrogen free extract; GE = gross energy

liquid, insects, bird eggs, and small birds. The study result of Sinaga *et al.* (2010) shows that cricket is a kind of feed of animal origin preferred by slow loris with the average of 91.6%, slightly below the silkworms with the average of 100%. According to Church & Pond (1988), feed intake was influenced by palatability depends on the appearance and shape of the feed, as well as smell, taste and texture of feed. Crickets and mealworms contain high protein and fat (Table 2), so palatable for slow loris. According to Men *et al.* (2001), feed stuff with high protein content can improve palatability, thereby increasing feed consumption. Described by Church (1979) that the palatability or preference level of an animal to a kind of feed is an expression and stimulation caused by the senses affected by physical and chemical

Table 4. Digestibility of feed on Sumatran and Javan slow loris

Nutrient	Sumatran slow loris						Javan slow loris		
	T0 (%)			T1 (%)			T1 (%)		
	1	2	Average	1	2	Average	1	2	Average
DM	90.26	87.64	88.95	91.38	91.04	91.21	91.97	92.07	92.02
OM	90.62	87.91	89.27	91.74	91.37	91.55	92.49	92.57	92.53
Ash	84.36	83.25	83.80	85.58	85.82	85.70	83.21	84.16	83.68
CP	92.85	91.93	92.39	93.90	92.44	93.17	94.39	93.34	93.86
CL	94.98	94.49	94.73	97.21	97.17	97.19	97.00	95.50	96.25
CF	71.96	61.45	66.70	71.30	65.72	68.51	72.85	74.75	73.80
NFE	92.39	87.75	90.07	91.62	92.93	92.28	93.16	94.92	94.04

DM = dry matter; OM = organic matter: CP = crude protein; CL = crude lipid; CF = crude fiber
NFE = nitrogen free extract

factors that may change due to physiological or psychological conditions of individual animals. Factors of feed palatability are important in measuring feed intake in animals (Tomaszewska *et al.* 1991).

Table 3 shows average consumption of the FM, DM, nutrient (ash, CP, CL, CF, NFE), and energy at T0 and T1 Sumatran slow loris is not too different, while average consumption of T1 Javan slow loris is higher than T1 Sumatran slow loris. The addition of potato biscuit in feed of T1 Sumatran slow loris did not increase DM and nutrient consumption, conversely an increase happened in consumption of DM and nutrient of T1 Javan slow loris. This difference is due to the fact that Javan slow loris is younger than Sumatran slow loris, so that its feed consumption is higher. Younger animal which is still in growth requires a higher intake of nutrients. Reported by Moen (1973), feed intake depends on the activity, sex, age, environmental condition and temperature change. Meanwhile, according to Parakkasi (1999), factors that affect the level of consumption is the animal itself, the feed, and the surrounding environment. Giving potato biscuit did not increase average consumption of OM (organic matter) of T1 Sumatran slow loris compared to that of T0 Sumatran slow loris, otherwise OM consumption of T1 Javan slow loris is higher than that of Sumatran slow loris (both T0 and T1). According to Nasution (2009), the consumption of organic matter (OM) is basically very closely related to the conditions found in dry matter (DM).

From the calculation of the consumption of dry matter (DM), it is known that the requirement / consumption of DM in T0 Sumatran slow loris was 4.48%, T1 Sumatran slow loris was 5.44%, and T1 Javan slow loris was 5.08% of body weight, with the average consumption of 5.00 ± 0.48%. Research results of Puspitasari (2003) shows that average consumption of DM in slow loris (*Nycticebus coucang*) was 12.82 ± 5.01% of body weight (587 ± 43.09 g) with DM digestibility coefficient value of more than 90% (97.45 ± 0.97%). While Wardani (2005) reported the average consumption of DM on tarsier is 4.01 ± 0.24%.

The average consumption of ash was similar in both treatment for Sumatran slow loris (T0 and T1), as well as for T1 Javan slow loris. The same thing happens to the value of the ash consumption per individual slow loris. Table 3 shows the average consumption of CP and NFE was higher than the average consumption of CL and CF at T0 and T1 Sumatran slow loris and T1 Javan slow loris. It can be explained that this is because the feed given generally contains high CP (boiled white eggs, crickets, and mealworm) and high NFE (banana, papaya, boiled sweet potato, and potato biscuit) (Table 2). Boorman (1980) reported an increase in protein intake is influenced by the protein content in the feed, ie. the higher the protein content of the feed the more protein consumed. According to Farida & Ridwan (2011), BETN is easily digestible carbohydrates, excluding crude fiber which consists of several components such as starch, fructose, resins, and organic acids used as an energy source. The high average of GE intake by Sumatran slow loris (both T0 and T1) and T1 Javan slow loris was due to the high GE content in feedstuff.

The average digestibility of DM and nutrient (ash, CP, CL, CF, NFE) in the treatment T1 Sumatran slow loris is higher than that of T0 Sumatran slow loris, but lower than that of T1 Javan slow loris, specifically for digestibility of DM, OM, CP, CF, and NFE (Table 4). T1 Sumatran slow loris consumes

DM higher than T0 Sumatran slow loris (Table 3), causing the coefficient of digestibility of DM and nutrient lower. Higher consumption will reduce the ability of the digestive enzymes, so that the movement rate of food substances (nutrients) in the digestive tract more quickly, which resulted in lower digestibility coefficients. Described by Arora (1989) that an increase in feed intake will increase the flow rate of feed in the digestive tract. Table 4 shows the capability of slow loris to digest DM and nutrients is high enough, more than 85%, except for CF. Digestibility coefficients of CF is lower than other nutrients, both in Sumatran slow loris and Javan slow loris. This is due to the fact that slow loris consume a lot of feedstuff high in carbohydrates and low in fiber (Table 2) which are expressed in the feces. High digestibility of feedstuff shows most of nutrients contained in the feed can be utilized by animal.

The average daily weight gain of T1 Sumatran slow loris is higher than that of T0 Sumatran slow loris, however daily weight gain of T1 Sumatran slow loris is lower than that of T1 Javan slow loris.(Table 5).

Javan slow loris is younger than Sumatran slow loris, so the increase of its daily weight gain is larger, followed by much more feed consumption. Daily weight gain of Javan slow loris is more influenced by younger age, which is characterized by rapid cell growth, so the growth also faster.

For daily weight gain per individual, T1 / 1 Sumatran slow loris shows negatif daily weight gain or decreased in body weight, giving the impact of the reduction in feed efficiency ratio (FER) and protein efficiency ratio (PER). Though DM consumption and digestibility coefficients of T1 / 1 Sumatran slow loris are not much different from those of T1 / 2 Sumatran slow loris. This fact shows that there are differences in the metabolic activity of individual Sumatran slow loris, resulting in different body weight gain.

The efficiency of feeds using is comparation between body weight gain and dry matter consumption of ration (Crampton & Harris 1969). The average feed efficiency ratio (FER) of T1 Sumatran slow loris is higher than that of T0 Sumatran slow loris (Figure 2). The higher the value of FER, the smaller the conversion rate. The NFE average digestibility coefficients of T1 Sumatran slow loris is higher than that of T0, so that daily weight gain is also larger, causing greater efficiency of feed utilization. This indicates T1 Sumatran slow loris is more efficient in the use of feed than T0 Sumatran slow loris and T1 Javan slow loris.

Protein efficiency ratio (PER) is one of some ways to measure protein quality qualitatively. PER of T1 Sumatran slow loris is higher than that of T0 Sumatran slow loris, but PER of T1 Javan slow loris is higher than that of T1 Sumatran slow loris. This means T1 Sumatran slow loris is more capable in digesting protein feed to body weight gain compared T0 Sumatran slow loris. While Javan slow loris which is slightly younger than Sumatran slow loris is more efficient in the use of protein feed to his daily weight gain. As described by Anggorodi (1979), younger animals will be able to use the protein in feed for its body weight gain. The higher the value of PER, the less protein needed for body weight gain (Winarno 1991).

In addition, Javan slow loris has a larger body size than Sumatran slow loris (Strein, 1986), resulting in larger need for basic living. As reported by Wahju (1997), the protein requirement is affected by the size of animal body; large animals require more protein per day for basic living.

Total digestible Nutrient (TDN) is an organic material that can be obtained by multiplying the digestible carbohydrates and protein that can be digested by a factor of one and crude fat that can be

Table 5. Daily weight gain, Feed Efficiency Ratio (FER), and Protein Efficiency Ratio (PER)

Description	Sumatran slow loris						Javan slow loris		
	T0			T1			T1		
	1	2	Average	1	2	Average	1	2	Average
Daily weight gain (g/head/day)	1.32	2.14	1.73	-0.50	4.57	2.04	4.09	0.23	2.16
DM intake (g/head/day)	38.82	38.44	38.63	36.95	37.90	37.42	44.94	40.08	42.51
Protein intake (g/head/day)	14.37	14.98	14.68	14.09	15.01	14.55	15.63	15.14	15.38
FER (%)	3.40	5.57	4.48	-1.35	12.06	5.44	9.10	0.58	5.08
PER (%)	9.19	14.30	11.80	-3.55	30.46	13.99	26.17	1.53	14.05

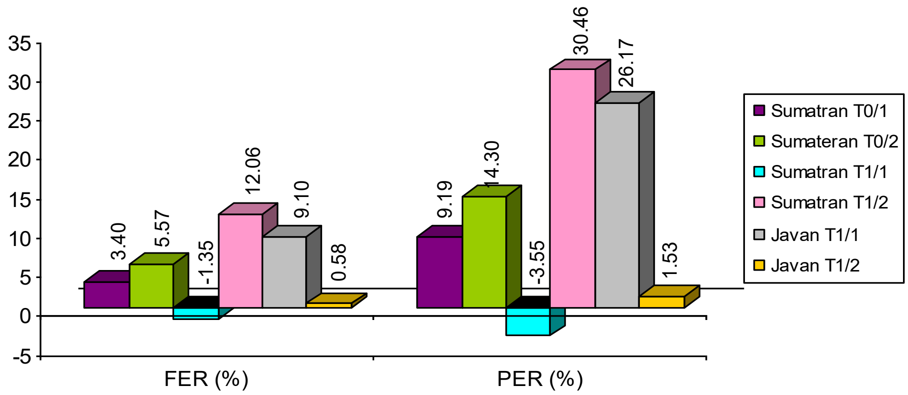

Figure 2. Feed Efficiency Ratio (FER) and Protein Efficiency Protein (PER)

Table 6. Gross Energy (GE), Total digestible Nutrien (TDN) and Digestible Energy (DE)

Variables	Sumatran slow loris						Javan slow loris		
	T0			T1			T1		
	1	2	Average	1	2	Average	1	2	Average
GE intake (cal/head/day)	1,932.76	1,763.62	1,848.19	1,749.45	1,679.10	1,714.27	2,028.99	1,836.53	1,932.76
GE feces (cal/head/day)	185.97	226.77	206.37	153.87	160.42	157.15	160.83	161.75	161.29
GE digested	1,746.79	1,536.86	1,641.82	1,595.57	1,518.68	1,557.13	1,868.16	1,674.78	1,771.47
DE (%)	90.38	87.14	88.76	91.20	90.45	90.83	92.07	91.19	91.63
DE (Mcal/kg DM)	3.77	3.59	3.68	3.77	3.76	3.76	3.82	3.86	3.84
TDN (%)	85.60	81.48	83.54	85.42	85.26	85.34	86.57	87.52	87.04

digested by a factor of 2.25. Nutrients used in the calculation of TDN is an organic material which is nutrients as source of energy (crude protein, crude fat, crude fiber and NFE). Table 6 shows the average value of TDN of slow loris is quite high, namely above 83%. In detail, TDN of T1 Javan slow loris > TDN of T1 Sumatran slow loris > T0 Sumatran slow loris; this is due to differences in the ability of each of slow lorises in digesting the feedstuffs given. Sumatran slow loris and Javan slow loris consume a lot of NFE which is apparent from the high content of NFE in feedstuffs (Table 2), causing high digestibility of NFE and low digestibility of CF. According to Syah (1984), the lower CF of feedstuffs, the higher the rate of movement of nutrients in the cecum, so it will increase nutrient digestibility. Digestible Energy (DE) is a percentage of the total energy consumption that is reduced by fecal energy and divided by energy consumption (Sutardi 1981). The calculations show T0 Sumatran slow loris, T1 Sumatran slow loris, and T1 Javan slow loris each requires the average energy intake of 88.76% or 3.68 Mcal / kg DM, 90.83% or 3.76 Mcal / kg DM, and 91, 63% or 3.84 Mcal / kg DM, respectively. The difference of DE value is due to the difference in consumption of energy and crude fiber on each individual slow loris.

CONCLUSION

The addition of potato biscuits in the feed of Sumatran slow loris does not improve dry matter, nutrient and energy intake, whereas there is an increase in dry matter, nutrient, and energy intake in Javan slow loris. T1 Sumatran slow loris is more efficient in the use of diets on body weight gain. Nutrient digestibility coefficient is quite high, so the total digestible nutrients (TDN) and digestible energy (DE) in Sumatran slow loris and Javan slow loris is also high, ie above 83%. The feed given in captivity can be tailored to the nutrient needs of slow loris.

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