The effect of oil Palm Petiole in total mixed diet on the consumption and digestibility in Bali cows (*Bos Sondaecus*)

M Afdal[1,2], D Darlis[1], S Syarif[1], A Kasim[2], A R Alimon[2], N Abdullah[2]
[1]Department of Animal Science Faculty of Animal Husbandry University of Jambi, Jambi, Indonesia, [2]Department of Animal Science Faculty of Agriculture Universiti Putra Malaysia, Serdang, Selangor, Malaysia
Email: bandatanang@yahoo.com

Introduction Oil palm petiole (OPP), a by product from oil palm plantation, is the stalk of the oil palm frond (OPF) without the leaflets and the outer layer. The possibility of using OPF and OPP as feed has been successfully tested with ruminants in Malaysia and Indonesia. However OPP was a possible alternative for OPF in feeding Bali cows (*Bos sondaecus*) since Bali cows were observed to reject fresh OPF. In term of palatability, Afdal *et al* (2009) reported that pellets of OPP were very much liked by Bali cows which could consume around 429 g/kgin total ration compared with other kinds of OPP processing like fresh chopped OPP and OPP meal. There is however no information on the effect of OPP on the productivity of Bali cows. . The aims of this study were therefore to investigate the effects of OPP in the mixed ration on the feed consumption, feed digestibility, daily gain and feed efficiency of Bali cows.

Materials and methods Four Bali cows, liveweight 113 ± 2.30 kg were used in this experiment. Animals were fed in DM basis according to the procedure of Darlis *et al.,* (2001) with diet A of 100 % field grass (FG), diet B of 50 % FG and 50 % pelleted OPP (POPP), diet C of 25 % FG and 75 % POPP and diet D of 33.3 % A, 33.3 % B and 33.3% C. Animals were fed once a day at 08.00h and had free access to water. The diet chemical composition can be seen at Table 1. The design of this experiment was a Latin Square (4x4) with the length of each period being 3 weeks with a two weeks of adaptation period and one week of data collection. Animals were weighted at the beginning and end of the data collection period. Diet consumption and faeces collection was done every morning and 10 % sample of faeces was taken for chemical analysis. Feed and faeces samples were dried at 60 ^{0}C and analysed according to procedure AOAC (1984). Values measured included feed consumption, the digestibility of dry matter (DM), organic matter (OM), crude protein (CP), acid detergent fibre (ADF), neutral detergent fibre (NDF) together with daily gain and feed consumption efficiency. ANOVA followed by Duncan test were applied for statistical analysis

Table 1 Feed chemical composition and ration consumption of experimental cows

Treatment	Chemical composition (g/kg)					Consumption (kg/d)				
	DM	OM	CP	ADF	NDF	DM	OM	CP	NDF	ADF
A	898.2	908.0	122.8	320.1	558.4	9.54^{a}	8.65^{a}	1.14^{c}	5.31^{a}	3.05^{a}
B	905.8	925.5	97.0	356.9	568.9	7.14^{cb}	6.54^{b}	0.96^{b}	4.03^{b}	2.42^{a}
C	909.5	928.3	84.0	375.2	574.2	6.66^{c}	6.14^{b}	0.91^{a}	3.79^{b}	2.38^{a}
D	895.5	911.4	100.3	347.2	561.5	7.28^{b}	6.66^{b}	0.87^{a}	4.10^{b}	2.45^{a}

Different superscrips within the same coulumn shows significantly difference (P<0.05).

Results Consumption of DM, OM and NDF was significantly (P<0.05) higher on treatment A that on B, C and D except for CP in which it was significantly (P<0.05) higher on treatment C than on treatment A, B and D (Table 1). Results showed that treatment affected the digestibility of DM, OM, NDF and ADF experimental cows (Table 2). There was significantly (P<0.05) different higher digestibility of treatment A than treatment B but there were not different with treatment C and D. The digestibility of CP was significantly lower on treatment A than B, C and D.

Table 2 The digestibility of nutrients of experimental cows

Treatment	Digestibility (%)				
	DM	OM	CP	NDF	ADF
A	90.60^{a}	91.20^{a}	92.72^{b}	89.69^{a}	87.61^{a}
B	85.47^{b}	85.97^{b}	96.67^{a}	82.84^{b}	80.43^{b}
C	87.34^{ab}	87.87^{ab}	97.99^{a}	85.27^{ab}	84.06^{ab}
D	88.39^{ab}	89.07^{ab}	96.32^{a}	86.72^{ab}	84.84^{ab}

Different superscrips within the same coulumn shows significantly difference (P<0.05).

Conclusion It can be concluded that OPP could be applied as ruminant feed as it provided better daily gain and feed efficiency on the Bali cow than field grass.

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