

4 2004 2001)
 50 500) (2005
 ()
 .(2x2) 2007)
 10 (2008
 %20

1) 1:1 %4
 1 %4
 (

°40
 .(2006 2004) 30
 2.5
 1

° 40 30
 %60 2.5
 .(1998) 30 . 1

%4
 ° 40 30 %20
 .(2006)
 %4
 %60
 .(1998) ° 40 30
 200 200

(Goering and Van Soest, 1970)

48

(In vitro)

(1959) Hillis Swain
100/ Tanic acid

(1963) Terry Tilley
()

Absorption

760

LKB,biochrom\Novaspec

2x2)

Completed Randomized Design / 2x2 (

Factorial Arrangement (CRD)

(Statistical Analysis System, 2001) SAS

(1955) Duncan

Yeast Extract Meat Extract Peptone
(2004)

48

(1)

(1988)

(P<0.05)

48

60

1

(P<0.01)

(1984 A.O.A.C.)

...

(P<0.01)

(P<0.01)

:(1)

/

** (0.626)	** (1.54)	956.84	946.37	953.65	945.45	/
** (2.628)	** (1.92)	818.73	849.45	802.73	845.63	
** (1.850)	* (1.15)	690.53	725.27	692.35	724.89	
** (1.187)	* (0.93)	209.84	231.03	210.28	232.01	
** (0.625)	** (1.82)	466.89	494.25	482.88	494.36	
** (0.205)	(1.22)	381.58	381.40	376.85	380.62	
** (0.460)	** (0.93)	83.35	112.98	85.17	111.23	
.. (1.274)	** (0.25)	41.64	31.13	40.58	30.20	%
.. (1.229)	** (0.63)	47.18	37.30	46.09	36.28	%

% 1

** % 5

*

(2)

(P<0.01)

(P<0.01)

:(2)

(48)

...	(0.852)	** (0.895)	18.83	18.78	18.70	17.98	100/
...	** (0.921)	** (0.834)	10 ⁵ ×6.9	10 ⁵ ×6.8	10 ⁵ ×7.2	10 ⁵ ×6.6	/

%1

**

(P<0.01)

(3)

()

(P<0.05)

(P<0.01)

:(3)

...	(1.824)	*(1.520)	958.01	962.22	956.00	961.80	/
...	(1.214)	** (1.783)	859.61	868.35	858.82	866.58	
...	(0.182)	** (1.012)	785.88	809.98	785.73	803.86	
...	(0.154)	** (0.878)	280.00	300.11	278.35	288.53	
...	(0.072)	** (0.572)	509.10	509.87	506.15	515.33	
...	(0.206)	** (1.384)	428.21	410.80	424.00	411.65	

1983a Jung) (1982 Wanapat)
 .(2007 .(1992 Felix IKem)

Dunn) ()
 (1979

(1983 Ha)
 Jayasuria Owen)
 .(2001 2000 1990

1983b Jung)
 (1997) Yen Duh (2004

2005
 2004
 .138-133 :36

1998 2004

.(In vivo)
 .145-135: 25 2005
 2007 -1

.682-669: 1 (8)
 2006
 .144-136 :(3)12 ()
 -2
 2008
 .414-401 (4) 2

.58-43 :(6)38

2000

1996

.41-31 :4

1988

1989

.178

2001

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Effect of Physical and Chemical Treatment of Frond and Barley Straw on Chemical Composition, Phenolic Compound Concentration and Anaerobic Bacteria

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ABSTRACT

Improving the efficiency of low quality roughage utilization by ruminant is the most effective means to increase voluntary feed intake). The objective of this study was to investigate the effect of Chemical Treatment (CT) with 4% sodium hydroxide of frond and barley straw ground and chopped on chemical composition, *in vitro* Organic Matter Digestibility (OMD), Phenolic Compound Concentration (PCC) and anaerobic bacteria. Data were analyzed separately for frond and barley straw using a completely randomized design in 2x2 factorial arrangement.

Chemical treatment of frond and barley straw significantly reduced ($P < 0.01$) organic matter, neutral and acid detergent fibre, hemicellulose and lignin as compared with untreated. In contrast, CT of frond and barley straw significantly increased ($P < 0.01$) *in vitro* OMD, PCC and anaerobic bacteria as compared with untreated. The physical form (ground or chopped) of frond had a significant effect ($P < 0.01$) on chemical composition and anaerobic bacteria; whereas no effect was observed for barley straw.

KEYWORDS: Frond, Barley straw, Chemical composition, Phenolic compound concentration, Anaerobic bacteria, Physical treatment, Chemical treatment.

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