Study on Making *Psathyrostachys juncea* Silage

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Introduction With high protein content and good palatability , *Psathyrostachys juncea* can be made into hay with high quality . But in the process of drying , many nutrients may be lost . In order to reducing the loss of nutrients and maintain its feeding value , it can be made into silage (Alexander N Hristov , 1998) . However , information on its silage quality is not available . The objective of this research was to determine the quality of ensiled *Psathyrostachys juncea* .

Materials and methods The primary growth of *Psathyrostachys juncea* was harvested at the late heading stage . This material was chopped into about 2cm in length and ensiled in polyethylene bags with or without different additives , and sealed with a vacuum packaging machine . Formic acid and molasses can decrease the pH value and the content of ammonia nitrogen of silage . In this text , formic acid was added at 2g/kg , 4g/kg and 8g/kg , respectively . Molasses was added at 10g/kg , 20g/kg and 40g/kg , respectively . Each treatment was made in three bags .All treatments were stored for 45 d at room temperature , then sampled for the analysis of fermentation quality and chemical composition .

Results The addition of formic acid decreased ($p<0.05$) pH value and ammonia nitrogen content ; increased WSC content , but did not affect DM , CP , NDF contents . ADF content was decreased ($p<0.05$) by adding 8g/kg formic acid . The addition of molasses decreased ($p<0.05$) pH value , ammonia nitrogen and ADF contents , but did not affect the DM , WSC , NDF contents . Crude protein content was increased ($p<0.05$) by adding 40g/kg molasses . The main results of fermentation quality and chemical composition of *Psathyrostachys juncea* silage are shown in Table 1 .

Table1 *The fermentation quality and chemical composition of* Psathyrostachys juncea *silages* .

Treatments	pH	Lactic Acid	Butyric-Acid	Ammonia Nitrogen/ Total Nitrogen(%)	CP	WS C	NDF	ADF
		(DM %)			(DM %)			
Control	4.82^{a}	2.79^{ab}	0.24	8.29^{a}	14.38^{b}	4.88^{c}	67.64	49.31^{a}
F_2	4.54^{bc}	1.11^{bc}	0.08	3.47^{d}	14.36^{b}	8.56^{b}	64.67	49.10^{a}
F_4	4.45^{bc}	0.07^{c}	0.07	2.37^{de}	14.47^{b}	12.48^{a}	63.49	45.76^{ab}
F_8	4.40^{c}	0.00^{d}	0.17	1.66^{e}	14.67^{b}	13.19^{a}	62.92	38.62^{bc}
M_10	4.57^{b}	4.56^{a}	0.10	6.98^{b}	15.08^{ab}	3.22^{c}	66.53	39.23^{bc}
M_20	4.22^{d}	4.85^{a}	0.21	4.98^{c}	15.47^{ab}	4.05^{c}	65.28	32.93^{c}
M_40	4.46^{bc}	5.42^{a}	0.02	4.82^{c}	15.84^{a}	4.95^{bc}	64.97	32.64^{c}

F : formic acid , M : molasses ; CP : Crude Protein ; WSC : Water Soluble Carbohydrates ; NDF : Neutral Detergent Fiber ; ADF : Acid Detergent Fiber . The different letters in the same column indicate significant differences at $p<0.05$.

Conclusion The addition of either formic acid or molasses can improve the fermentation quality and nutritional value of *Psathyrostachys juncea* silages .

Reference

Alexander N Hristov , 1998 .Proteolysis and rumen degradability of protein in alfalfa preserved as silage , wilted silage or hay . *Animal Feed Science and Technology* , 175-181 .