



E-ISSN: 2278-4136
P-ISSN: 2349-8234
www.phytojournal.com
JPP 2020; 9(4): 729-730
Received: 17-04-2020
Accepted: 21-05-2020

Divyashree HJ

Department Of Sericulture, UAS
GKVK, Bengaluru, Karnataka,
India

Chandrashekhara S

Department Of Sericulture, UAS
GKVK, Bengaluru, Karnataka,
India

Deepa KB

Department Of Sericulture, UAS
GKVK, Bengaluru, Karnataka,
India

Vishaka GV

Department Of Sericulture, UAS
GKVK, Bengaluru, Karnataka,
India

Corresponding Author:**Divyashree HJ**

Department Of Sericulture, UAS
GKVK, Bengaluru, Karnataka,
India

Evaluation of moisture percentage of mulberry based silages

Divyashree HJ, Chandrashekhara S, Deepa KB and Vishaka GV

Abstract

The lab experiment was conducted during October to November 2016 to evaluate the moisture percentage of mulberry based silages. The study was conducted at College of Sericulture Chintamani, UAS, GKVK, Bengaluru. The experiment consisted of nine treatment combination with three replications laid out in a Complete Randomised Design. The analysis of moisture percentage of mulberry based silages was found to be highest in 50 per cent mulberry leaves and shoots with 50 per cent maize that is about 89.72%.

Keywords: Evaluation, mulberry based silages and moisture percentage

Introduction

Mulberry (*Morus alba* L.) is a hardy plant capable of growing under varied agro climatic conditions. It is sensitive to limited plant nutrients and soil moisture. Mulberry leaf is the only food for silkworm (*Bombyx mori* L.). In India, mulberry is cultivated in an area of 2.82 lakh hectares giving livelihood to about 8.18 lakh sericulture families in 50,918 villages. Out of the total mulberry area, 80 per cent is under irrigated condition. In Karnataka, out of 1.66 lakh hectares of mulberry area, 95 per cent of mulberry gardens are under irrigated condition (Anon., 2006) ^[1] Silage production is favored in some instances since it is less weather dependent. Fewer field and transportation losses occur during ensiling and the silage is more palatable because it is cut at a younger growth stage, thus containing less structural carbohydrates (Blaser, 1964) ^[2]. The process of ensiling can be described as the controlled fermentation of crop containing moisture between 50 and 82 percent moisture, in a bunker or silo to preserve it for later use (Dodds et al., 1985 and McDonald et al., 2002) ^[3,4].

Morus, a genus of flowering plants in the family Moraceae, comprises 10–16 species of deciduous trees commonly known as mulberries, growing wild and under cultivation in many temperate world regions. The mulberry plant in tropical belt is grown as low bush while as high bush in temperate regions. In tropical conditions, individual leaf and branch harvest is done with a yield of 10 to 30 ton/ha/yr, while it is shoot harvested in temperate regions with a leaf yield of 25 to 30 ton/ha/yr. The percentage of moisture, protein and carbohydrates are higher in temperate regions when compared to tropics.

Material and Methods

An investigation entitled “Evaluation of the Mulberry Based Silage for its moisture percentage was carried out during 2016-17 in the laboratory condition at College of Sericulture, Chintamani, Chikballapura district, Karnataka, India. The experiment was laid in completely randomized block design with nine treatments and three replications each viz., T₁-100% Mulberry, T₂-100% Maize, T₃- 100% Napier grass, T₄-75% Mulberry leaves with shoots+25% Maize, T₅-75% Mulberry leaves with shoots+25% Napier, T₆-50% Mulberry leaves with shoots+50% Maize, T₇-50% Mulberry leaves with shoots+50% Napier, T₈ -25% Mulberry leaves with shoots +75% maize, T₉ -25% Mulberry leaves with shoots +75% Napier. The treatments had been set up with the combination of different forage material and different quantity (percentage). The Evaluation of the Mulberry Based Silage for its moisture percentage was analyzed. Based on the results of analysis, the best suited combination of silage will be worked out. The following observations were recorded during the research studies.

Results and Discussion

The highest value of 89.72 per cent moisture was observed in T₆. The result showed highly significant differences among the treatments.

The moisture estimation of the silage showed significant results. The highest moisture content of 89.72 was noticed in the T₆ (50 percent Mulberry+ 50percent maize) followed by 88.02 percent in T₂ (100 percent Maize). The lowest moisture content was observed in T₄ (75% Mulberry leaves with shoots +25% Maize) of 80.79 percent followed by T₉ (25 percent mulberry leaves with shoots + 75 percent Napier grass) The optimum moisture percent is critical for effective packing of silo to expell air as fast as possible and for the effective

growth of LAB (Lactic acid bacteria) reported by Mc Donald *et al.*, 2002^[4]. The moisture content in the mulberry based silage was about 78.77 per cent was noticed in the T₉ and lowest per cent of moisture was found in T₁ (68.69%).The results were compared with Knicky (2005)^[5] and he also reported that the silage above 75 per cent of moisture can prolong the fermentation process which in turn lowers the energy content and leads to excessive break down of plant protein in the silage.

Table 1: Influence of moisture percentage on Mulberry based silage supplemented with Maize and Napier grass

Treatments	Moisture%
T1: 100% Mulberry	84.13
T2: 100% Maize	88.53
T3: 100% Napier	87.30
T4: 75% Mulberry leaves with shoots +25% Maize.	80.79
T5: 75% Mulberry leaves with shoots +25% Napier grass.	86.13
T6: 50% Mulberry leaves with shoots + 50%Maize.	89.72
T7: 50% Mulberry leaves with shoots + 50% Napier grass	85.14
T8: 25% Mulberry leaves with shoots +75%Maize.	87.20
T9: 25% Mulberry leaves with shoots +75% Napier grass.	83.85
Mean	85.87
F-test	*
S. Em	+ 0.99
CD at 1	% 4.02

Conclusion

The present study shows that the mulberry leaf is a good feedstuff for ruminants. High percentage of moisture make it superior to those of other crops. It can be used as supplement and replace the other silage crops. So that mulberry can replace after forage crops without any negative effect.

Acknowledgement

The research investigation is part of the Msc programme entitled "Evaluation of the Mulberry Based Silage for its nutritive quality". An opportunity to complete my masters study was provided by University of agricultural sciences, college of sericulture chintamani, GKVK Bengaluru.

References

1. Anonymous. Annual administrative Report. Department of Sericulture, Government of Karnataka, 2006, 90.
2. Blaser R. Symposium on forage utilization: Effects of fertility levels and stage of maturity on forage nutritive value. J Anim. Sci. 1964; 23(1):246-253.
3. Dodds DL, Johnson L, Fisher G. Silage production and management. North Dakota State University, US, 1985.
4. Mcdonald P, Greenhalgh J, Edwards RA, Morgan CA. In: Animal Nutrition (6th ed.). Pearson, Prentice Hall, England. Addison-Wesley Longman Ltd, 2002, 515-535.
5. Knicky M. Possibilities to improve silage conservation. Effects of Crop, Ensiling Technology and Additives. Doctoral thesis, Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Sweden, 2005, 1-34.