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Use of Kodo millet straw ruins the cross bred cows amid COVID-19

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Abstract

Fodder and forages are fuel for the livestock. The concept of alternative feeding advised widely during drought and unexpected fodder scarcity. Besides some forage plants may become toxic under certain conditions like flowering, soil composition and use of fertilizers etc. In this study conducted to know the effect of kodo millet straw feeding in cross bred cows. Twelve cross bred animals divided into two groups as group A and B fed with paddy straw and Kodo millet straw respectively. The animals fed with kodo straw exhibited respiratory discomfort compared to the paddy straw fed group. So selection and usage alternative feedstuffs like azolla, tree fodder and hydroponic recommended.

Keywords: Kodo millet straw, Cow, COVID-19, Respiratory distress

Introduction

Fodder crisis is common threat to livestock farming transient period during poor monsoon cycle. But in amid of COVID 19 pandemic poor monsoon and prolonged lockdown especially suspension of forage carrying vehicle and poor economic level of farmers leads to fodder scarcity. Thumb rule of Feeding of cross bred cattle 2.5 to 3 kg of total Dry matter intake for 100 kg body weight. From the total dry matter 2/3 should be provided with roughage and 1/3 as concentrates. Moreover in roughage divided in such a way that 2/3 should be dry roughage and 1/3 should be green fodder (Reddy, 2009) [1]. Dry roughages are majorly from two sources in India viz. paddy straw (*Oryza sativa*) in south and wheat (*Triticum aestivum*) straw in north.

The present study carried out with the following complaints received from the dairy farmers on an account of chronic recurrent coughing and off feed in dairy animals fed with kodo millet straw. In a detailed anamnesis and clinical examination we found that he feeds the animals with a *Paspalum scrobiculatum* (Kodo millet) straw due to scarcity of fodder. Symptomatically animals were treated but animals were not responded. Hence it was hypothesized that feeding of kodo millet is the cause for coughing and off feed ailments of dairy farm.

Materials and methods

This field study done in single dairy farm owned 12 female dairy cows of irrespective of age, breed and body weight which shows coughing after feeding of Kodo millet straw. The animals were categorized into two groups equally as Group A conventional (control) fed with machine rolled paddy straw in Figure 1 and Group B is machine rolled kodo millet straw in Figure 2. The respiratory ailment was recorded during the feeding of one week. Respiratory ailment score assigned as 0 for no respiratory ailments, 1 for coughing with no nasal discharge, 2 for coughing with nasal discharge, 3 for coughing nasal discharge and off feed. Toxicological and microbiological culture analysis for aflatoxin and its organism was done as per routine procedure. During the trial both the group fed with same concentrate and *ad libidum* of water and was in stall rest. Non-parametric Data was tested by Mann-Whitney U test (two tailed) because of small sample and Z-score considered.

Results and Discussion

The result of the comparative assessment on the effect of feeding paddy straw and kodo millet straw was presented in figure 3. The non-parametric analysis revealed significant difference in respiratory ailment score between the two groups. The animals fed with the experimental straw (kodo - group B) exhibited significantly ($P < 0.05$) higher respiratory distress following feeding for one week.

Even though the respiratory ailment scores are high in kodo straw fed group, the microbiological evaluation did not revealed any specific organisms of respiratory tract origin.

Small millets are one of the major food sources next to wheat and rice in India. Kodo millet is one of the small millet commonly cultivated and produced more in the state of Tamil Nadu and Madhya Pradesh of India. It's unique in low phosphorus content and antioxidant potential than other small millets. (Deshpande *et al.*, 2015) [2]. The colour of crop may vary from light brown to grey or mild blackish and ideal for intercropping while rain fed paddy or wheat cultivation. Kodo millet grain contains high amount of starch, dietary fibre (37.8 per 100g), total phenol (368.0mg per 100 g) and essential amino acid phenylalanine (0.430g per 100g) than other small millets (Verma *et al.*, 2018) [3]. In livestock feeding, straws are filler ingredients. It has less nutritive value, coarse and high fibre content aids in microbial digestion. In dry climates, well-harvested, stored and processed straws may have a nutritive value similar and in some cases better than dried, mature tropical grasses. In temperate areas, straws can be emergency feeds in periods of drought (Suttie, 2000) [4]. An interestingly Kodo grain is usually referred to be poisonous to cattle and human. The poisoning of the grain is associated with the toxic substance cyclopiazonic acid and is believed to be produced by *Aspergillus flavus*, *A. tamarii* and *Phomopsis paspalli* (Verma *et al.*, 2018) [3]. But in our study we could not found conclusive organism to support this evidence.



Fig 1: Paddy straw



Fig 2: Kodo millet straw

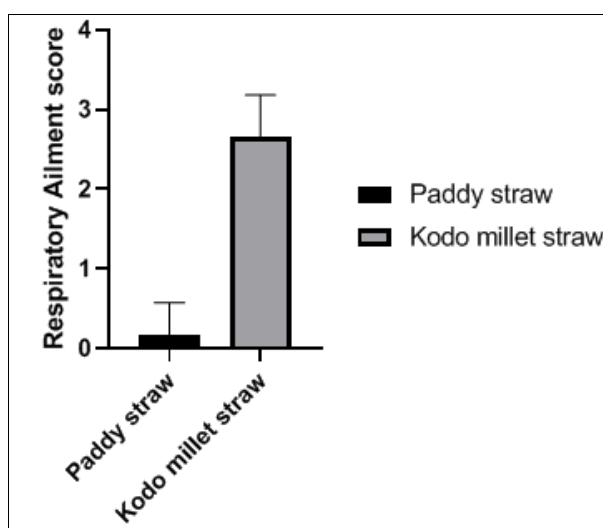


Fig 3: Respiratory ailment while feeding in Group A (Paddy straw) and Group B (Kodo millet straw) animals

Conclusion

It's concluded that Kodo straw causes respiratory ailment in cross bred cattle when there is a fodder crisis. Hence it's advised that feeding with unconventional feedstuffs like tree fodder with less anti-nutritional factor or hydroponics would be the alternative for crisis like amid covid 19. Limitation of the study is less sample size and short term evaluation of parameters.

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