

***STUDIES TO ENHANCE THE NUTRITIVE VALUE
OF SUGARCANE TOPS AND ITS EFFECT ON
RUMEN FERMENTATION***



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CERTIFICATE

This is to certify that the thesis entitled “*Studies to enhance the nutritive value of sugarcane tops and its effect on rumen fermentation*” submitted in part fulfilment of the requirements for the degree of *Master of Veterinary Science* to the **Tamil Nadu Veterinary and Animal Sciences University, Chennai** is a record of bonafide research work carried out by **SELVI P.DIPTI WILHELMINA**, under my supervision and guidance and that no part of this thesis had been submitted for the award of any degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific or popular journal or magazine.

Date: 20.08.01

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ABSTRACT

Title	:	STUDIES TO ENHANCE THE NUTRITIVE VALUE OF SUGARCANE TOPS AND ITS EFFECT ON RUMEN FERMENTATION
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A study to enhance the “nutritive value of sugarcane tops and its effect on rumen fermentation” was carried out. Seven samples of local varieties of sugarcane tops in Tamil Nadu were collected and analysed for their proximate principles, fibre fractions and mineral profile. Sugarcane tops were found to have low CP (6.58 per cent) and high CF (29.83 per cent). Fibre fractions revealed a high cellulose percentage (32.48). Ca, P and Mg were found to be below critical level, whereas Cu, Zn and Fe were above critical level.

Silage was prepared from sugarcane tops using 0.5 per cent of salt and 1 per cent molasses. This was compared with unensiled sugarcane tops for their degradability characters. It was found that *in vitro* dry matter degradability (48 hours incubation) of unensiled sugarcane tops was 42.03 per cent and ensilage increased dry matter degradability (51.05 per cent). RDN value for both unensiled and ensiled sugarcane tops were less than potential N needed for microbial production. Hence ensiling of sugarcane tops with NPN supplements was carried out under various treatments. The treatments were control, 20 per cent CLD, 30 per cent CLD, 0.5 per cent urea and 1 per cent urea. Silage prepared under various treatments were analysed for organoleptic characters, biochemical parameters and Flieg index. The studies revealed that silage prepared with

0.5 per cent urea had a 100 Flieg index and was graded as excellent silage followed by 20 per cent CLD and control with comparable Flieg index of 93.33.

These treatments were further subjected for *in vitro* study, which showed an higher dry matter degradability (56.35, 54.88, 51.93 respectively) for 30 per cent CLD followed by 20 per cent CLD and 1 per cent urea. The fermentation pattern also revealed that CLD treated sugarcane tops had a desirable effect followed by urea treated sugarcane tops. The stoichiometry worked out for these treatments confirmed the results of fermentation pattern through energetic efficiency, which was observed to be higher for CLD treated silages compared to urea as well as control treatments. Based on the physical and bio- chemical parameters and *in vitro* study it could be inferred that 20 per cent CLD in ensiled sugarcane tops are better as compared to 30 per cent CLD and urea treated ensiled sugarcane tops and could be of practical value for feeding livestock. However, this needs to further substantiated by *in vivo* study.