



## Effect of formaldehyde treated soybean meal at different incubation periods on *in vitro* digestibility and volatile fatty acids

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### ● ABSTRACT ●

An experiment was conducted to study the effect of formaldehyde treated soybean meal at different incubation periods on *in vitro* dry matter digestibility and total volatile fatty acids at Department of Animal Husbandry and Dairying, Nagpur during 2008-2009. The IVMD values of soybean meal was significantly affected due to combination of HCHO treatment and incubation periods. Treatment means decreased with increasing level of HCHO. Whereas incubation mean increased with increasing level of incubation period. The TVFA values of soybean meal were significantly affected due to combination of HCHO treatment and incubation period. Result showed that TVFA of soybean meal decreased with increasing level of formaldehyde treatment.

**KEY WORDS :** Incubation period, Formaldehyde, Protein, Soybean meal

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### ● INTRODUCTION ●

Protein contents of ration are the important nutritional consideration for feeding animals. Protein supplements are more expensive ingredients in ruminant ration. Protection of natural proteins of high biological value from degradation in the rumen seems to have great potential in ruminant nutrition for better growth and production (Malik and Chopra, 1978, Tiwari and Yadav, 1989). Formaldehyde treatment has been found to be an efficient and comparatively cheaper method to protect highly degradable protein sources (Ramchandra and Sampath, 1995). Formaldehyde treatment at different incubation periods to soybean meal offers a possible means of protecting the protein from degradation by rumen microorganisms and decreases pH level. Hence, the present study was undertaken to assess the protection of *in vitro* dry matter digestibility and total volatile fatty acids by different levels of formaldehyde treatment at different incubation periods.

### ● MATERIALS AND METHODS ●

The soybean meal was treated with formaldehyde (37%) solution at 0.0 (untreated), 1.0 (T<sub>2</sub>), 1.5 (T<sub>3</sub>), 2.0 (T<sub>4</sub>) and 2.5 (T<sub>5</sub>) % per 100 gm cp. The crude protein content of soybean meal was 46%. Hence, amount of formaldehyde solution required was 0.0, 12.42, 18.60, 24.84 and 31.04 ml, respectively. The volume of the solution was made to 40 ml with water and formaline solution was sprayed over the samples and mixed immediately. There after, these samples were sealed airtight in polythene bags and kept for 7 days for proper reaction of formaldehyde with proteins. After 7 days, the polythene bags were opened and dried the sample at 75°C for 24 hrs. The treated samples were ground finely after drying. These samples were used for further analysis.

The well mixed samples of rumen liquor were drawn from different parts of rumen of two male animals by suction. This strained rumen liquor (SRL) was used for *in vitro* study. The samples were incubated in *in vitro* tubes at 39°C with strained rumen liquor and mc dougall's buffer solution for 4, 8, 12 and 18 hours.

The *in vitro* protein degradation technique recommended by Lohan and Gupta (1990) was followed. The data were arranged in Factorial Completely Randomized Design (FCRD) and analyzed by standard statistical method as per Snedecor and Cochran (1989).

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