

IN VITRO DRY MATTER DIGESTIBILITY OF FORAGE SORGHUM (*Sorghum vulgare*)

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ABSTRACT

Six promising varieties of sorghum viz., RFSV-2000-1, RFSV-2000-2, RFSV-2000-3, RFSV-2000-4, Ruchira and SSG-59-3 were grown at the farm of Department of Animal Science and Dairy Science, College of Agriculture, Pune and data on the chemical composition and in-vitro dry matter digestibility were statistically analyzed in the simple randomized block design. Average DM, CP, CF, TA, EE, NFE, NDF, ADF, Cellulose, Hemi cellulose, Ca, P and IVDMD recorded was 27.42 ± 0.12 , 5.98 ± 0.04 , 31.96 ± 0.25 , 6.89 ± 0.10 , 1.57 ± 0.01 , 53.30 ± 0.98 , 72.37 ± 0.18 , 48.01 ± 0.13 , 34.39 ± 0.17 , 26.48 ± 0.25 , 0.38 ± 0.0004 , 0.11 ± 0.01 and 64.63 ± 0.08 per cent, respectively. The different varieties of sorghum for DM, CP, CF, EE, TA, NDF, ADF, Calcium, Cellulose, Hemi cellulose and IVDMD contents were significantly differed from each other. Among the varieties the significantly highest DM (31.47%), was observed in Ruchira, CP (6.83%) in SSG-59-3, EE (1.78%), Cellulose (36.68%) and Ca (0.45%) in RFSV-2000-3, NDF (77.68%) in RFSV-2000-4, ADF (49.44%) and IVDMD (68.56%) in RFSV-2000-2. The CF, ADF and NDF content was significantly lower in RFSV-2000-2 (30.10%), RFSV-2000-4 (46.31%) and SSG-59-3 (69.51%), respectively compared to other varieties. The NFE and Phosphorus content did not differ significantly among the varieties, however, was relatively higher in SSG-59-3 (54.19%) and RFSV-2000-3.

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India is predominately an agricultural country with more than 75 per cent of the population residing in villages and are dependant on Agriculture, Animal Husbandry and allied activities for their livelihood. Due to the chronic shortage of feeds and fodders coupled with poor nutritive value of available feeds and has lowered the productivity and fertility of India's livestock. There is a little scope for increasing the area under green fodder production (Pandey, 1995). Therefore, it is necessary to evolve new nutritious and high yielding varieties of forage crops.

In India, the cereal forage crops like maize and sorghum are the most important and popular for ruminants, both as green and dry fodder. The importance of forage crops depends upon their green fodder yield and nutritive value. Variation in the chemical composition exists among sorghum fodder varieties were also reported (Gupta *et al.*, 2002). Owing to this the present investigation was undertaken to determine the chemical composition and in vitro dry matter digestibility of new sorghum fodder varieties.

MATERIALS AND METHODS

Six varieties of sorghum (*Sorghum vulgare*) grown

at the Farm of Department of Animal Science and Dairy Science, College of Agriculture, Pune were harvested at 50 per cent flowering stage. A representative sample of each (one kg) was collected and dried in oven to record dry matter yield and further chemical analysis (AOAC, 1975) was carried out. The strained well mixed samples of rumen liquor was used for *in vitro* study (Tolley and Terry, 1963 and Van Soest *et al.*, 1966). The data recorded on the chemical composition and *in vitro* dry matter digestibility was statistically analyzed (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

The average DM content of sorghum varieties was 27.42 ± 0.12 per cent and differed significantly from each other, except RFSV-2000-2 and SSG-59-3. Among the varieties Ruchira contains highest DM. Similar dry matter content of sorghum was reported by Maheshwari (1976) and Gupta *et al.* (2002). The significant difference in the DM content of sorghum was reported by Desai and Deore (1980) and Deshmukh *et al.* (1981). The average CP content of sorghum varieties observed was 5.98 ± 0.04 per cent, which was similar to those reported by Maheshwari (1976) and Paroda (1976). However, higher CP content of sorghum varieties was reported by Gaffar and Kadukar (1972), Deshmukh *et al.* (1981). The different varieties