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Effect foliar application of animal urine and panchagavya on nitrate reductase activity and soluble protein content in shoot tip of deshi cotton

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ABSTRACT

Investigation carried out at Cotton Research Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola indicating that amongst all the treatments of different concentration of animal urine and *Panchagavya*, foliar application of cow urine 6% (T_7) followed *Panchagavya* 6% (T_9) recorded highest nitrate reductase activity and soluble protein content in shoot tip of cotton c.v. AKDH-5 (prereleased) at all the growth stages right from vegetative to boll formation stages. This information may be very useful because above treatments favourd in stimulating the better growth, increasing number of sympodial branches and ultimately for getting higher productivity to the cultivators.

Key words : Animal urine, Panchagavya, Auxin, NR activity, Soluble protein content.

INTRODUCTION

Deshi cotton varieties are grown in India in about 20% of the total area. The characteristic of these varieties are their strong resistance to diseases, insect pest, drought resistance and suitability for rain fed condition. Hence, any variety evolved from Asiatic cotton will be valuable contribution if it can combine yield and quality. These parameters are mainly controlled by physiology of plant. The physiology of cotton was not engaged enough attention of research workers in India. Thus this crop offers a good scope for investigation in the physiological aspects. The yield dependent on several physiological and metabolic process of the plant and process has some correlation with auxin, enzymes and protein content. Auxin is an internal factor for growth, plays significant role in growth stages. Enzymes in crop may act as a carrier for crop growth (Mansinghka, 2005).

Now a days cultivators have a trend to follow the organic farming. Therefore, while practicing the organic farming they use animal urine as a source of organic fertilizer. In such practices of using animal urine specially cow urine they observed good and satisfactory growth and development of the crop. This enhanced growth and development of the crop finally remained responsible for increasing the yield levels.

Nitrate reductase enzyme helps to convert unavailable nitrate in available nitrite form and again increasing protein content in shoot tip hence both are essential to enhance the over all growth and development of crop. The present study is to find out the effect of animal urine and Panchagavya on a activity of Nitrate reductase enzyme and soluble protein content in shoot tip of cotton cv. AKDH-5 (Prereleased).

MATERIALS AND METHODS

The experiment was carried out on the field of cotton research unit. Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during *kharif* 2005-06, with AKDH-5 (prerelased) variety of deshi cotton. The experiment was laid out in Randomized Block Design with ten treatments

Table 1 : Concentration of IAA (ppm) in cow urine, buffalo urine and Panchagavya in Pure form and of different concentration

Sr. No.	Urine concentration	IAA concentration (ppm)
1.	Pure cow urine	237.8
2.	Cow urine 2 %	6.56
3.	Cow urine 4 %	11.78
4.	Cow urine 6 %	15.44
5.	Pure buffalo urine	173.7
6.	Buffalo urine 2 %	5.35
7.	Buffalo urine 4 %	8.75
8.	Buffalo urine 6 %	11.35
9.	Panchagavya	209.2
10.	Panchagavya urine 2 %	5.90
11.	Panchagavya urine 4 %	9.61
12.	Panchagavya urine 6 %	13.49

N.B.: Auxin content in animal urine was estimated in the laboratory of molecular biology department of Botany Dr. Panjabrao Deshmukh Krishi Vidhapeeth, Akola as per the procedure given by Krishnamoorthy (1993)

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