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POTENTIAL OF HERBAL GALACTOGOGUE IN AUGMENTING MILK PRODUCTION

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ABSTRACT

A total of 12 Jersey Sahiwal crossbred cows between the 1st and 3rd lactation stage were selected and allotted into two groups T0 and T1 having 6 cows in each. A pre treatment period of 0-15 days (devoid of any treatment) was maintained for both the groups. Similarly, a post treatment period of 36th to 45th day was also observed. Group T0 (n=6) was kept as control. Group T1 (n=6) was supplemented with galactogogue Payapro bolus (M/S Ayurvet Ltd) (4 boli/ day) during the treatment period of 20 days (16th to 35th day). Parameters such as feed intake, milk yield, SNF%, fat%, and temperature humidity index were evaluated. Results revealed that the milk production significantly increased (59.70% increase) in group T1 during the treatment period as compared to group T0. There was no significant difference in the feed intake between the groups. No significant difference in fat% and SNF % was observed between the groups. The mean Temperature Humidity Index (THI) value was 85.76 indicating severe thermal stress during the experimental period.

KEYWORDS: Galactogogue, Heat Stress, Milk yield.

INTRODUCTION

Milk production is the prime objective behind rearing and management of cows. Optimal milk yield leads to increased profitability and thereby brings about economic prosperity to the farmers. India has highest livestock and bovine population in world, but due to use to inferior breeds and lack of availability of balance feed to animal; there is quite low per animal production on milk.[1] There's a plethora of adverse factors that finally culminate in decreased milk yield. Milk composition and component yields can be affected by genetics and

environment, level of milk production, stage of lactation, disease (mastitis), season and age of cow.[2] Heat stress is detrimental to dairy production and affects feed intake, rumination, nutrient digestibility and absorption, which in turn can decrease milk and component yield[3]. The animal productivity can be increased by using different herbs as a component of animal feed. Now a days, herbal plants are widely used as animal feed additives, having galactogogue properties viz. Shatavari, Jiwanti (*Leptadenia reticulata*), Bhringraj (*Eclipta alba*), *Acacia cataehu*, *Carica papaya* (Papaya) and Methi (*Trigonella foenum*).[4][5]. Shatavari has galactogogue and mamogenic function through enhancing blood prolactin and cellular division in mammary gland to augment lactation.[6] Keeping in view the greater inclination for herbal products by virtue of its better safety profile and efficacy, an acute need for further research in this direction has been strongly felt to strengthen our claims through scientific validation of the products.

MATERIAL AND METHODS

Experimental design

A total of 12 Jersey Sahiwal cows were selected from the instructional livestock farm complex, YSR district, Andhra Pradesh, India for the purpose of study and allotted into two different groups T0 and T1. The cows had access to ad-libitum feed and water. T0 was kept as control and fed standard basal diet without any treatment. A pre- treatment period of 0-15 days was observed during which no treatment was administered to any of the groups. Group T1 was administered Payapro bolus (M/S Ayurvet Ltd) @ 4/boli/ day for a period of 20 days along with standard basal diet *i.e.* from day 16th to day 35th. A post treatment period of 10 days *i.e.* from 36th day to 45th day was also maintained for both the groups. Parameters such as feed intake, milk yield, fat%, SNF%, density of milk, temperature humidity index were evaluated. All the results were analyzed statistically as per the methods described by Snedecor and Cochran, 1994.[7]

RESULTS AND DISCUSSION

Milk yield

The mean temperature humidity index (THI) value was 85.76 indicating severe thermal stress during the experimental period. The milk yield of cows during the pre treatment period was 3.59 litres in group T1 and 3.99 litres in the group T0 (Table 1 and 2). There was significant increase in the average milk yield in group Payapro bolus treated group T1 during the treatment period of 16th to 35th day. An increase of 2.14 litres of milk yield (59.70% increase)

compared to the pre- treatment period was observed (Table 2). It was also revealed that a sustainable milk yield was attained during the post treatment period (Table 2). However, the increase in milk yield in the control group during the period of 16th to 35th day was non-significant compared to the milk yield during the pre treatment period (Table 1). The milk yield further declined during the post treatment period (Table 1). The increase in milk yield in group T1 may be attributed to presence of herb *Leptadenia reticulata* in Payapro bolus. *Leptadenia reticulata* administered to five cows at the dose of 1.5gm/cow/bid for 15 days produced an increase in milk yield in four out of five cows with a net gain of 10.5%.[8] The increase in milk yield may be ascribed to yet another herb *Asparagus racemosus* present in Payapro bolus. It was revealed in a study that five hundred grams of fresh roots of *Asparagus racemosus* per day, from 21st day after calving till 50 days was fed to lactating buffalos, which resulted in a significant increase in milk yield.[9] Studies have further shown *Asparagus racemosus* root is a rich source of minerals and trace elements such as calcium, copper, magnesium, iron, manganese, nickel, and zinc.[10] Zinc is a component of numerous enzymes, and therefore plays a key role in the metabolism of cows. It affects the metabolism of nucleic acids, carbohydrates, proteins and fats, the immune system and the formation of important hormones.[11]. In addition to vitamin, protein, and energy requirements, the dairy cows also need certain trace elements including zinc, copper, and manganese, plus the microelements magnesium and potassium for lactation and reproduction concurrent with growth and maintenance of body tissues.[12,13] *Nigella sativa,* which is present in Payapro bolus is also known to increase milk yield.[14] There was no significant difference in the feed intake between group T1 and T0.

Table1. Average milk yield of cows in group T0 (Control group)

Duration (Days)	Average Milk Yield (litres)
Pre-treatment period (0-15 days)	3.99
Treatment period (16-35 days)	4.15
Post treatment period (36-45 days)	3.55

Table 2. Average milk yield of cows in group T1 (Payapro treated group)

Duration (Days)	Average milk yield (litres)
Pre-treatment period (0-15 days)	3.59
Treatment period (16–35 days)	5.74
Post treatment period (36-45 days)	5.81

CONCLUSION

Mean milk yield was found to be high in the Payapro bolus supplemented group as compared to the control group. This suggests the role played by Payapro in augmenting milk yield in the lactating cows.

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