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AMELIORATION OF WEANING STRESS IN CROSSBRED PIGLETS USING PREBIOTIC AND PROBIOTIC SUPPLEMENT

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ABSTRACT

The present study was designed to assess the effect of probiotic and probiotic on growth performance and variation on haematological profile of crossbred weaned pigs. A total of 20 weaned crossbred piglets of 87.5 percent Khasi local x Hampshire and Ghungroo of ten each were selected on the basis of weight and divided equally as into two groups irrespective of their sex. The feed additive had been added at the level of 2% in treatment group along with feed for three months during winter season. Individual body weight was measured at fifteen days interval and blood samples were collected at monthly intervals for haematological parameters. The final body weight at the end of the experiment was found to be 27.67 ± 5.36 kg in control group and 29.40 ± 2.22 kg in the treatment group. There was no significant difference in body weight between the treatment and the control groups at any stage of the experiment. There was significant ($P<0.05$) difference between control and treatment group in respect of WBC and neutrophil count, although there was no significant difference in other haematological parameter.

Key words: Prebiotic, probiotic, *Saccharomyces cervisiae*, piglet, haematological parameter.

The conventional use of probiotics to modulate gastrointestinal health such as improving lactose intolerance, increasing natural resistance to infectious diseases in the gastrointestinal tract, suppressing traveler's diarrhea and reducing bloating, has been well investigated and documented[3]. In light of the interrelationship between intestinal bacterial flora and animal host, maintenance of the normal balance of intestinal flora is essential for the health of domestic animals and fowls and also for the promotion and improvement of productivity such as growth and feed efficiency. The combination of both pre and probiotic supplementations maintain the normal micro flora environment of the gastro intestinal tract. Probiotics including yeast and lactobacilli cultures have been reported to improve the performance of weaned pigs[2, 4]. However information regarding effect of feeding *Sacchromyces cervisiae* to ameliorate winter stress in crossbred (Local Khasi x Hampshire and Ghungroo) piglets is very meagre. Therefore this study was proposed to study the effect of probiotic productive performance and haematological parameters on crossbred pigs in winter season.

MATERIALS AND METHODS

The study was conducted at Livestock Production Farm, ICAR RC for NEH Region, Umiam, Meghalaya for the period of three months i.e. from November, 2013 to February 2014. The study location lies in between 25°41'-21"N &

91°55'-25'E. Ten crossbred piglets of 87.5% Hampshire X Khasi Local and ten Ghungroo piglets after weaning at the age of 2 months of either sex were selected and distributed equally in two groups by weight irrespective of their sex. The animals were weighed individually. The piglets were vaccinated and dewormed before experiment. The feed additive containing *Saccharomyces Cervisiae* 1000 billion c.f.u, *Lactobacillus acidophilus* 30000 million c.f.u, *Lactobacillus sporogens* 30000 million c.f.u, *Bacillus substilis* 60000 million c.f.u, *Bacillus licheniformis* 60000 million c.f.u., *Fructooligosaccharide* 5000 mg and *Mannan oligosaccharide* 5000 mg. The additives were given at the level of 2% to the experimental group along with feed and the control group was without the additive supplement. The body weights were recorded every fifteen days interval and blood samples were collected at monthly interval from anterior vena cava of both the groups for haematological examination viz. WBC count ($X10^6$/dl), RBC count ($x10^3$/µl), LYM (%), and GRAN (%). The data were analyzed using the software SPSS 11.5

Table 1. Monthly averages of climatic data during study period.

Month	Temperature (°F)		Relative Humidity		THI
	Maximum	Minimum	Maximum	Minimum	
December, 2013	78.15	46.00	82.75	42.75	62.49
January, 2014	69.62	40.28	81.5	45.6	60.32
February, 2014	77.54	47.3	70.9	48.4	62.83

RESULTS AND DISCUSSION

The body weight at the end of the experiment i.e. 5 months of age was found to be 27.67 ± 5.36 kg in control group and 29.40 ± 2.22 kg in the treatment group, though there was no significant difference. No significant difference was observed between the control and the treatment group at any stage of record. Similar results were also obtained by other workers in pig supplemented with yeast culture[10]. In contrast to the present findings, another author reported that there was significant difference in final body weight and total gain after probiotic feeding in Nellore sheep[1]. However, there was significant difference ($P<0.05$) between the treatment group and the control group with respect to feed intake (kg) and feed conversion ratio. These results are in agreement with other experiment wherein, the author reported positive growth response in weaned piglets, supplemented with prebiotic and probiotic combination[9].

Haematological parameter

The WBC count was found to be significantly lower in probiotic fed group compared to the control group at all the stages of the experiment. No significant difference was found between the two groups for RBC count, lymphocyte, monocyte, neutrophil, eosinophil and basophil count (data not shown). Similar results were also reported by various workers [6 8]. It was observed that the neutrophil count was comparatively less in the treatment group. Results indicated that the supplementation may be responsible for modulation of the immune system. Decreased neutrophil and WBC count could be one reason for increase of mucosa immune defense. The present result is in concordance with various studies that have investigated the action of yeast culture or yeast cell wall components on the immune system and animal health [5, 7]. Two piglets died of respiratory problem in the control group. But there was no mortality in the treatment group which showed that prebiotic and probiotic supplementation might be helpful in enhancing the immunity and protecting the animals from cold stress. Another worker also reported that yeast culture had a positive effect on gut health and immune response[5].

CONCLUSION

During the study period there is no mortality of piglet fed with feed additive as compared to the control group. So, it can be concluded that there is beneficial effect for mitigating the weaning stress and climatic stress. Except WBC count there was no significant difference with other haematological parameter as well as body weight gain of crossbred pigs.

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