International Journal of Veterinary Sciences and Animal Husbandry

ISSN: 2456-2912
NAAS Rating (2025): 4.61
VET 2025; 10(9): 145-147

www.veterinarypaper.com
Received: 05-07-2025
Accepted: 06-08-2025

S Senthilkumar
Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Theni, Tamil Nadu, India

S Chitradevi
Associate Professor, Department of Veterinary Microbiology, Veterinary College and Research Institute, Theni, Tamil Nadu, India

V Naveenkumar
Assistant Professor, Veterinary Clinical Complex, Veterinary Microbiology, Veterinary College and Research Institute, Udumalpet, Tamil Nadu, India

Corresponding Author:
S Senthilkumar
Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Theni, Tamil Nadu, India

Assessing the efficacy of pro bead-EC probiotics in *Siruvidai* native chicken

S Senthilkumar, S Chitradevi and V Naveenkumar

DOI: https://www.doi.org/10.22271/veterinary.2025.v10.i9c.2541

Abstract
The study was conducted to assess the efficacy of Pro Beads-EC Probiotics *in Siruvidai native* chickens reared in the Theni district of Tamil Nadu, India, in terms of growth performance, livability, intestinal coliform, and immunomodulatory effect against Ranikhet disease. Accordingly, the experimental study was conducted, in which group I (N=30) birds were considered as a test group and group II (N=30) acted as a control group. Along with routine management procedure, group I birds were supplemented orally with five Pro Beads-EC probiotic beads per bird in the early morning along with regular feeding, and group II control birds were fed with normal commercial feed from one day old to 8 weeks of age. The results indicated that the body weight gain, livability, and increase in antibody titer against Ranikhet disease in the test group were significantly higher than in the control group. On account of intestinal coliform counts, there was no significant difference in both groups. This study concluded that supplementation of Pro Beads-EC probiotics for *Siruvidai* native chicken had significantly improved the body weight gain, livability, and increase in antibody titer against Ranikhet disease.

Keywords: Pro Beads-EC probiotics beads, *Siruvidai* native chicken, growth performance

Introduction
The population of native chicken in Tamil Nadu showed a decreasing trend in native chicken production from 2001 to 2010 in most of the districts of the State. To provide support to the weaker section, the scheme on 'Rural livelihood improvement through backyard poultry rearing' was implemented in Tamil Nadu from 2011 onwards. The prevailing poultry culture in the State has further nurtured a lot of small and medium sized poultry farms and entrepreneurs in rural areas with the result there is an increase of 2.84% total poultry population in the State and 34.54% in Rural Backyard Poultry (20th Livestock Census) [12]. Now a days, consumers often prefer native chicken meat due to its perceived superior taste, texture, and nutritional value compared to commercial broilers. Factors like traditional farming practices and sustainable production also contribute to this preference.

Apart from that, backyard native chicken rearing is an important livelihood activity for small scale farmers in Tamil Nadu and contributes substantially to fulfill the household nutrition and income. In Theni district, Tamil Nadu, farmers are rearing *Siruvidai* native chicken, are reared in low cost, free /semi intensive method of rearing because of its adaptableness, resistance to various disease and consumer acceptance for its distinctive sensory qualities of meat and egg. However, growth performance and health outcomes in native birds can be constrained by variable feed quality, enteric challenges, and the absence of standardized supplementation practices. Probiotics, typically comprising beneficial strains such as Lactobacillus, Bacillus, Enterococcus and others are reported to modulate the intestinal micro biota, enhance nutrient utilization, improve feed conversion ratio (FCR), and support mucosal immunity (Kabir *et al*., 2004; Panda *et al*., 2005) [3, 8]. Probiotic supplementation mainly focused on commercial broilers and layers under controlled environments, leaving a gap regarding efficacy, dosage, and economic returns of probiotic supplementation in indigenous breeds chicken. Probiotics, Pro Bead-EC is formulated with the property of targeted delivery principle which is directly open into the intestine of chicken. It consists of probiotic strains.

(Bacillus *subtilis*, *Bacillus firmus*, *Lactobacillus* spp, Yeast-*Saccharomyces cerevisiae*) 10^8 CFU/Bead, cellulose acetate phthalate 15%w/v, Excipients Q.S. This product was developed by Translational Research Platform for Veterinary Biologicals, a constituent unit of Tamil Nadu Veterinary and Animal Sciences University, Chennai, India. Accordingly, this study was designed to assess the efficacy of Pro bead EC supplementation in *Siruvidai* native chickens.

Materials and Methods

Experimental study was carryout in a *Siruvidai* native chicken farm from day one to 8 weeks age of birds in Aranmanai Pudur Village, Theni, Tamil Nadu. The birds are reared in semi intensive system. From day old to 8 week of age, birds were fed with commercial desi chicken feed along with regular management activities. Both test and control group birds were raised in same environmental condition. Group I test group birds (N=30) were fed with Pro Bead-NC (5 beads per bird) and after a period of one hour, fed with standard commercial desi chicken ration and group II control birds were fed with standard commercial desi chicken ration without Pro Bead-NC and both the groups were vaccinated against Ranikhet disease on 7th and 21st days. Body weight measured for both group birds 0 day, 2nd, 4th, 6th and 8th week end. To find out the livability percentage, mortality was recorded. Intestinal swap was collected from 10 birds randomly in both the groups in 8th week end to estimate the coliform count and blood was collected from 15 chickens randomly in both the groups by filter paper technique at the end of 5th week to assess the Haemagglutination inhibition (HI) titer against Ranikhet disease at Avian Disease Laboratory, TANUVAS, Thalaivasal Taluk, Salem District.

Results and Discussion

Native chicken ecotypes of Tamil Nadu remain integral to low-input, free-range and backyard systems because of their adaptability, disease tolerance, and consumer preference for meat and eggs with distinctive sensory qualities. The *Siruvidai* native chicken, a locally adapted type reared across parts of southern Tamil Nadu, is valued for its hardiness under resource-limited conditions and fluctuating climates. However, growth performance and health outcomes in native birds can be constrained by variable feed quality, enteric challenges, and the absence of standardized supplementation practices, factors that are particularly relevant in Theni district, where small and marginal farmers predominate. In this study, efficiency of dietary supplementation of Pro Bead-EC in *Siruvidai* native chicken were given in Table 1.

Table 1: Body weight and livability percentage of *Siruvidai* native chicken on supplementation of Pro Beads-E

	Attributes	Control	Treatment	P-Value
Body weight gain (g/bird)	Hatch Weight	33.53±0.16	33.43±0.14	0.650
	2 Week	110.61^a±0.40	115.38^b±0.15	0.001
	4 Week	307.32^a±0.41	316.23^b±0.15	0.001
	6 Week	367.20^a±0.38	376.19^b±0.25	0.001
	8 Week	529.73^a±0.89	548.22^b±0.23	0.001
	Attributes	**Control**	**Treatment**	**P-Value**
Livability (%)	1st Week	100±0.00	100±0.00	-
	2nd Week	100±0.00	100±0.00	-
	4th Week	100±0.00	100±0.00	-
	6th Week	94.60^a±0.62	100.0^b±0.00	0.001
	8th Week	93.80^a±0.72	100.0^b±0.00	0.001

Each value is mean of three observations

Means with different superscripts in a row differ significantly (p<0.05)

This field trial in *Siruvidai* native chickens demonstrates that routine supplementation of ProBead EC gives measurable gains in mean body weight of *Siruvidai* chicks up to 8 weeks age and showed statistically significant difference (p<0.05) between probiotic supplemented test group and control group. Bodyweight gain was high in test group when compared to control group (Table 1). The magnitude of performance weight gain improvement aligns with prior reports for Bacillus-based probiotics in broilers and native chickens under tropical conditions (Jha, 2020; Shibi Thomas and Jayalalitha, 2021) [2, 11]. Supplementation of probiotics improved the bodyweight gains likely arise from multiple mechanisms: competitive exclusion of pathogens, production of digestive enzymes, reinforcement of tight-junction integrity, and immunomodulation enhancing vaccine take (Lee *et al*., 2010; Markowiak and Slizewska, 2018) [4, 5]. TANUVAS Aseel chicken showed improved body weight when fed with probiotics along with regular ration (Murugan *et al*. 2022) [6]. On account of livability at market age, there was no significant difference between test and control groups up to four weeks of age, after that Probead EC supplemented *Siruvidai* chickens had showed significant high livability percentage in sixth and eighth weeks of age when compared to control group. Supplementation of probiotics, native chicken showed decreased mortality percentage (Amar and Khan, 2012; Muthusamy *et al*., 2024) [1, 7]. For estimation of coliform count, intestinal samples were analysed. There was no significant difference in coliform count of test and control groups. Similarly, probiotics supplementation in Assel chicken, there was no significant reduction in *E. coli*, *Clostridium* spp count, and the both groups showed absence of *Salmonella* spp (Shibi Thomas and Jayalalitha, 2021) [11].

Table 2: Haemagglutination titre (HI) against Ranikhet disease in *Siruvidai* native chicken on supplementation of Pro Beads-EC

Group & age 5 weeks	HI titer						GM Value
	No of samples	< 16	16	32	64	128	
Test group	15	7	5	2	1	0	13.9
Control group	15	13	2	0	0	0	8.6

Antibody titre against ranikhet disease was assessed, in test groups, significant increase in the HI titre than the control groups (Table 2). Rowghani *et al*. (2007) [10] reported that supplementation of probiotic in commercial broiler chickens diet, significant increase in the Newcastle antibody titers compared with those of control group.

Conclusion

The observations obtained in this revealed that supplementation of probiotics (Pro beads-EC) through feedin

Siruvidai native chicken under semi intensive system of rearing significantly improved the body weight, livability and substantial increase in the HI titre against ranikhet disease.

Acknowledgement
The author acknowledge the Director of Extension Education, Tamil Nadu Veterinary and Animal Sciences University, Chennai for providing financial support, utilization of infrastructure in the Farmers Training Centre, Theni and Thiru M Sivakumar, Sirividai chicken farmer who supported to carry out the experimental trial.

Conflict of Interest: Not available

Financial Support: Not available

Reference

1. Amar MY, Khan SH. A comparison between the effects of a probiotic and an antibiotic on the performance of desi chickens. Vet World. 2012;5:160-165.
2. Jha R, Das R, Oak S, *et al*. Probiotics (Direct-Fed Microbials) in poultry nutrition and their effects on nutrient utilization, growth and laying performance, and gut health: A systematic review. Animals. 2020;10:1863.
3. Kabir SML, Rahman MM, Rahman MB, Rahman MM, Ahmed SU. The dynamics of probiotics on growth performance and immune response in broilers. Int J Poult Sci. 2004;3:361-364.
4. Lee KW, Lillehoj HS, Siragusa GR. Direct fed microbials and their impact on poultry production and health. J Poult Sci. 2010;47:106-114.
5. Markowiak P, Slizewska K. The role of probiotics, prebiotics and synbiotics in animal nutrition. Anim Nutr. 2018;4:115-125.
6. Murugan M, Durairajan R, Devendran P. Effect of probiotic (Probeads-Ec) supplementation on the growth performance of Aseel cross chicks. Agric Sci Digest. 2025;45(2):350-352.
7. Muthusamy N, Akila N, Murugan MS. Evaluation of the effect of probiotics on growth performance in backyard poultry farming. J Adv Biol Biotechnol. 2024;27(12):31-5.
8. Panda AK, Reddy MR, Rao SVR, *et al*. Growth, carcass characteristics, immune competence and response to Escherichia coli of broiler chickens fed with various levels of probiotic. Arch Geflügelkd. 2000;64:152-156.
9. Patterson JA, Burkholder KM. Application of prebiotics and probiotics in poultry production. Poult Sci. 2003;82:627-631.
10. Rowghani E, Zamiri MJ. Effects of additives on chemical composition, degradability coefficients and ruminal intestinal disappearance of dry matter and crude protein of laboratory ensiled olive cake. Iran J Vet Res Univ Shiraz. 2007;8(1).
11. Thomas KS, Jayalaitha V. Effect of targeted delivery of Probeads-EC® on the production performance of Aseel cross chicks. J Vet Anim Sci. 2021;53(1):94-97.
12. Department of Animal Husbandry and Dairying, Government of India. 20th Livestock Census; 2019.

How to Cite This Article
Senthilkumar S, Chitradevi S, Naveenkumar V. Assessing the efficacy of pro bead-EC probiotics in *Siruvidai* native chicken. International Journal of Veterinary Sciences and Animal Husbandry. 2025;10(9):145-147.