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3	The Combination Effect of Probiotic Prebiotic Lactic Acid Bacteria on Efficiency of Feed Usage on Broiler Chicken	2019
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5	Penambahan L-Arginin dalam Pengencer Susu Skim Kuning Telur Terhadap Viabilitas dan Motilitas Spermatozoa Sapi Limousin Post Thawing pada Semen Beku.	2016
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Wakil Dekan III,

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# THE INDIAN VETERINARY JOURNAL

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Vol. 96

May 2019

No. 05

## CONTENTS

### GENERAL ARTICLES :

<b>Nutritional Profile Comparison of Cow Milk and Sow Milk for the Development of Milk Replacer to Early Weaned Piglets</b>	...	09
K.Roopa, R.Karunakaran, H.Gopi, D.Balasubramanyam and L.Radhakrishnan		
<b>Blood Parameter Profile and Helminthiasis Identification in Sheep Fed with Diets Rich in Polyunsaturated Fatty Acid (PUFA)</b>	...	11
Herinda Pertiwi, Siti Eliana Rochmi and Tri Bhawono Dadi		
<b>Effect of Noni (<i>Morinda citrifolia</i>) Fruit Juice on Production Performance of Layer Type Japanese Quails</b>	...	14
R. Richard Churchil, A.V. Omprakash, P. Kanagaraju, S. Daffine and C. Pandian		
<b><i>Terminalia arjuna</i> Modulates Oxidative Stress in Buffaloes Exposed to Lead Contaminated Water and Feed</b>	...	17
Subrat Kumar Dash, Shashi Nayyar, Sandeep Sodhi Kakkar and Rajesh Jindal		
<b>Nanobubble Aquaculture System: Its Effect Towards Immune Response and Infection of <i>Vibrio</i> sp. in Vannamei Shrimp (<i>Litopenaeus vannamei</i>)</b>	...	21
Gunanti Mahasri, Laksmi Sulmatiw, Sudarno, Prayogo, Galang Damar Pamenang and Ade Irmalia Harifa		
<b>Comparative Studies on Preemptive Meloxicam, Ketoprofen, Tolfenamic Acid and Flunixin for Managing Postoperative Pain in Dogs</b>	...	24
R.Manikandan, K.Jayakumar, S.Senthilkumar, P.Selvaraj and S.Dharmaceelan		
<b>Assessment of Prophylactic Control of Subclinical Mastitis in Dairy Cattle</b>	...	27
R.Thangadurai and P.S.Shanmugam		
<b>Prevalence of GI Helminths in Small Ruminants of Low Lying and Marshy Areas of Kashmir Valley</b>	...	30
M.M. Shah, R.A. Shahardar, I. Maqbool, Z.A. Wani and I.M. Allaie		
<b>Non Steroidal Anti-Inflammatory (NSAIDs) Drugs on Cardiopulmonary Functions During General Anaesthetic Protocol in Dogs</b>	...	34
R.Manikandan, S.Dharmaceelan, K.Jayakumar, S.Senthilkumar and P.Selvaraj		
<b>Oxygen Dissolved Nanobubble Technology Improved the Quality of Pacific White Shrimp Cultivation</b>	...	37
Gunanti Mahasri, Ade Irmalia Harifa and Sudarno		
<b>Effect of Flunixin Meglumine on Blood Biochemical Profile in Embryo Recipient Crossbred Cows</b>	...	40
Ankit Malik, Shiv Prasad, Sunil Kumar, Mayank Maithani and H.P Gupta		
<b>Study on Association of Serum Testosterone with the Physical Traits in <i>Jallikattu</i> Bulls</b>	...	43
R. Priyadharsini, A. Gopinathan, S.M.K. Karthickeyan, P.N. Richard Jagatheesan and P. Kumarasamy		
<b>ECG Markers in Subclinical Hypocalcaemia Exacerbated Clinical Ketosis in Transition Cows</b>	...	47
S.Yogeshpriya, P.Selvaraj, S.Krishnakumar, M.Saravanan and P.K.Ramkumar		
<b>Cytogenetic Characterisation of Alambadi Breed of Cattle in Tamil Nadu</b>	...	49
S. Parameswari, D. Cauveri, S.M.K. Karthickeyan, K. Arunachalam and P. Kumarasamy		
<b>2-D Ultrasonographic Imaging for the Detection of Renal Abnormalities in Dogs: A Clinical Evaluation of 85 Cases</b>	...	52
Varsha Mary Mathai, B. Nagarajan, D. Sumathi and Sabiha Hayath Basha		

## CLINICAL ARTICLES :

<b>Surgical Management of Concurrent Fibropapilloma and Sebaceous Adenoma in a Dog</b> R. Uma Rani, D.Vishnugurubaran, N. Pazhanivel and S. Kokila	... 55
<b>External Skeletal Fixation for the Treatment of Metatarsal Fracture in a Goat</b> V. P. Athira, C. B. Devanand, M. K. Narayanan, S. Anoop and Laiju M. Philip	... 57
<b>External Hysterectomy for Irreducible Total Uterine Prolapse in a Non- Descript Doe: A Case Report</b> M.G. Mohamed Ali, S. Kavitha, M. Kanaga Devi, Cecilia Joseph, N. Arunmozhi and T. Sarath	... 59
<b>Traumatic Evisceration of Abomasum in a Jersey Crossbred Cow Surgical Management</b> C. Pugazharasi, P. Veeramani, M.G. Ali, Cecilia Joseph and T. Sarath	... 62
<b>Cystic and Urethral Calculi - A Case Study of Surgical Management in a Two Year Old Labrador Dog</b> M. Madeena Begum, S. Tina Roshini and V. Bhuvaneshwari	... 64
<b>Therapeutic Management of Gastroenteritis in Fawn of Four-Horned Antelope (<i>Tetracerus Quadricornis</i>)</b> Ranjeet Harne, Shivam Jar and Amol Rokde	... 66
<b>Multiple Vaginal Fibroma in Dogs and its Treatment – Review of Six Cases</b> R. Uma Rani, K. Jeyakumar, S. Kokila, D. Vishnugurubaran and N. Pazhanivel	... 68
<b>Mammary Gland Adenocarcinoma in a Ten Year Old Labrador Retriever</b> M. Madeena Begum, S.Tina Roshini and V. Bhuvaneshwari	... 70

## SHORT COMMUNICATIONS :

<b>Turkey Pox in the Cauvery Delta Region of Tamil Nadu</b> M. Sasikala, J. Selvaraj and N. Babuprasath	... 72
<b>Rabies in Northern Kerala among Dogs, Cats, Cattle and Goats</b> Naik Madhura, Ajith Jacob George, R.Anoopraj, H.B.Vidyanani, Nikhil Sanjay Rao, Bedre Sumanth, K.S.Prasanna, M.Pradeep, Hamza Palekkodan, C.Sunanda, M.Kavya and T.L.Krupa	... 73
<b>Heterogenous ImmunoglobulinY (IgY) Therapy: A New Modality in Canine Parvovirus Enteritis Treatment</b> V. Naveenkumar, M. Vijaya Bharathi and B. Nagarajan	... 76
<b>Lousiness in a Nandanam Variety of Turkey (<i>Meleagris gallopavo</i>)</b> N. Jeyathilakan, S.T. Bino Sundar and A. Sangaran	... 77
<b>The Combination Effect of Probiotic Prebiotic Lactic Acid Bacteria on Efficiency of Feed Usage on Broiler Chicken</b> Emy Koestanti Sabdoningrum, Tri Bhawono Dadi and Erma Safitri	... 79
<b>Floor Cleaning Effect of Herbal Mixture in Cattle and Pig Sheds</b> D.Divyalakshmi, N.Kumaravelu and B.Samuel Masilamoni Ronald	... 81
<b>Polycystic Kidney Disease in Three Dogs - A Report</b> D.Sumathi, P.Ramesh, K.Jeyaraja, A.Gopalakrishnan and M.G.Jayathangaraj	... 83
<b>Offline Mobile App for Veterinary Professional</b> S.Prasanna Devi, G.Chamundeeswari and S.Tharani Kumar	... 85
<b>Ultrasound Guided Needle Aspiration of Prostatic Abscess in Five Dogs</b> D.Sumathi, P.Ramesh, A.Gopalakrishnan, K.Jeyaraja, S.Subapriya and H.Pushkin Raj	... 88

<b>Author and Subject Index</b>	<b>90 - 91</b>
---------------------------------	----------------

*gallopavonis* in Madras. It was reported from Iraq (Al-Mayali and Kadhim, 2015) and US (Lane *et al. loc.cit*). *Menacanthus stramineus* is the body louse of poultry and found infesting turkey. The head was almost triangular in shape and the forehead was armed with of spine like processes ventrally. Anterior margin of head was broadly convex with fully exposed maxillary palp and club shaped antennae concealed beneath the head. Abdomen was elongated and broadly rounded posteriorly with two dorsal rows of setae on each segment. (Fig.2). Occurrence of *Menacanthus stramineus* was reported in chicken all over the world. However reports about *Menacanthus stramineus* in turkey were scanty (Fabiyyi *et al.*, 2017; Lane *et al., loc.cit*; Rassouli *et al.*, 2016; Raezaei *et al.*, 2016). However, Alwar and Lalitha (*loc.cit*) reported this louse in turkey from Madras. Larval (Fig.3) and nymphal stages (Fig.4) of lice were also collected from the turkey. Numerous nits were found attached to the feathers in clumps (Fig.5). However these findings were not reported earlier.

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Indian Vet. J., May 2019, 96 (05) : 79 - 80

## The Combination Effect of Probiotic Prebiotic Lactic Acid Bacteria on Efficiency of Feed Usage on Broiler Chicken

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### Abstract

This study aimed to replace antibiotics that have been used for antimicrobial activity for years with probiotics. T0: normal feed, T1: feed+probiotic *L.acidophilus*, T2: feed+probiotics *L.casei*, T3: feed+probiotics *L.fermentum*, T4: feed+probiotic *L.plantarum*, T5: feed+probiotic *Pediococcus*, T6: feed+mixture of probiotics. Two research stages: 1.basic feed: 23% protein (1<sup>st</sup>-3<sup>th</sup> weeks

age), 2. grower-finisher feed: 21% protein (3<sup>st</sup>-5<sup>th</sup> weeks age). Result of the research: significantly different feed efficiency, the highest yield on T6, which was provided with feeding+mixed probiotic (*L.acidophilus*, *L.casei*, *L.fermentum*, *L.plantarum*, *Pediococcus*).

**Key words** : Probiotic Prebiotic, Lactic Acid, Feed Efficiency, Broiler

The issue of avoiding antibiotic resistance is one reason to exploit natural resources

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**Table I.** Average Feed Consumption, weight gain, and feed efficiency on the broiler given probiotics in drinking water

Treatments	Feed Consumption	Weight gain (g)	Feed Efficiency
T0	0,893.75 <sup>a</sup> ± 0.89	1590.00 <sup>a</sup> ± 1.59	0,4543 <sup>a</sup> ± 0,00
T1	1043.75 <sup>c</sup> ± 1.04	1632.50 <sup>a</sup> ± 1.63	0,5000 <sup>c</sup> ± 0,00
T2	966.00 <sup>abc</sup> ± 0.96	1620.00 <sup>a</sup> ± 1.62	0,4764 <sup>b</sup> ± 0,00
T3	910.00 <sup>ab</sup> ± 0.91	1532.50 <sup>a</sup> ± 1.53	0,4758 <sup>b</sup> ± 0,00
T4	997.50 <sup>abc</sup> ± 0.99	1545.00 <sup>a</sup> ± 1.54	0,5000 <sup>c</sup> ± 0,00
T5	1023.75 <sup>bc</sup> ± 0.10	1585.00 <sup>a</sup> ± 1.58	0,5000 <sup>c</sup> ± 0,00
T6	1317.25 <sup>d</sup> ± 1.31	1660.00 <sup>a</sup> ± 1.66	0,5881 <sup>d</sup> ± 0,00

Note: Values having different superscripts in the same column differ significantly (p <0.05)

that have benefits for livestock and human health (Willey *et al.*, 2009). Lactic acid bacteria that lives around us can be inoculated, replicated in large amounts, so that it can be used for production and disease prevention functions in broiler. The biomass content of lactic acid bacteria proteins can survive in extremely low pH conditions (3.0-3.5) is the nature of lactic acid bacteria that can kill pathogenic bacteria which do not survive in very acidic pH conditions (Jin *et al.*, 2000).

### Material and Methods

The experimental design used was Completely Randomized Design (CRD) due to the homogeneous environmental conditions and body weight, and the samples were randomly conducted with seven types of treatment groups, each treatment consisted of four replications. T0: normal feed, T1: feed+probiotic *L.acidophilus*, T2: feed+probiotics *L.casei*, T3: feed+probiotics *L.fermentum*, T4: feed+probiotic *L.plantarum*, T5: feed+probiotic *Pediococcus*, T6: feed+mixture of probiotics. Data obtained were analyzed by Anova (*Analysis of Variant*). If there is a significant difference (P <0.05), the statistical test is continued with Tukey test. Data analysis in this study used is SPSS 13 for Windows XP (Safitri *et al.*, 2016).

### Results and Discussion

Based on the ANOVA test, in each treatment were not significantly different from feed consumption and chicken production, but in significantly different from the highest value on T6 which was equal to 0.5881 (p <0.05) on the efficiency of feed use (Table I).

The results of this study has shown that

the feed consumption and body weight did not differ significantly, but the feed efficiency was significantly different. The treatment P6 with probiotic mixture was the best Probiotic mix is a combination of all bacteria used, namely *L. acidophilus*, *L. casei*, *L. fermentum*, *L. plantarum*, and *Pediococcus*.

As lactic acid increases, the pH of the environment becomes low and causes other microbes not to grow. When colonization occurs on the surface of the digestive tract, lactobacilli prevents fungal growth and suppresses *E. coli* growth and gram-negative pathogenic bacteria in the small intestine. *L. acidophilus* and *L. casei* performs to act as probiotics which can increase chicken body weight (Zulkifli *et al.*, 2000). *L.fermentum*, *L. plantarum*, and *Pediococcus* includes lactic acid bacteria which are capable of playing the role of antimicrobial activity thus inhibiting *E. coli* and *S. aureus* (Jin *et al.*, 1998).

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# THE INDIAN VETERINARY JOURNAL

Vol. 96

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No. 05

## SUBJECT INDEX

### Bacteriology and Microbiology

Assessment of Prophylactic Control...	27
Turkey Pox in the Cauvery Delta...	72
Rabies in Northern Kerala...	73
Heterogenous ImmunoglobulinY...	76

### Canines, Equines and Felines

Comparative Studies on Preemptive Meloxicam...	24
Non Steroidal Anti-Inflammatory...	34
2-D Ultrasonographic Imaging for the Detection...	52
Surgical Management of Concurrent...	55
Cystic and Urethral Calculi...	64
Multiple Vaginal Fibroma in Dogs...	68
Mammary Gland Adenocarcinoma...	70
Rabies in Northern Kerala...	73
Heterogenous ImmunoglobulinY...	76
Polycystic Kidney Disease in Three Dogs...	83
Ultrasound Guided Needle Aspiration...	88

### Cattle and Buffaloes

<i>Terminalia arjuna</i> Modulates Oxidative...	17
Assessment of Prophylactic Control...	27
Effect of Flunixin Meglumine on Blood...	40
Study on Association of Serum...	43
ECG Markers in Subclinical Hypocalcaemia...	47
Cytogenetic Characterisation of Alambadi...	49
Traumatic Evisceration of Abomasum...	62
Rabies in Northern Kerala...	73
Floor Cleaning Effect of Herbal...	81

### Fisheries Sciences

Nanobubble Aquaculture System...	21
Oxygen Dissolved Nanobubble Technology...	37

### Goats and Sheep

Blood Parameter Profile and Helminthiasis...	11
--	----

Effect of Noni ( <i>Morinda citrifolia</i> ) Fruit Juice...	14
Prevalence of GI Helminths in Small Ruminants...	30
External Skeletal Fixation for the Treatment...	57
External Hysterectomy for Irreducible...	59
Rabies in Northern Kerala...	73

### Mobile Application for Veterinary Use

Offline Mobile App...	85
-----------------------	----

### Nutrition

Nutritional Profile Comparison of Cow Milk...	09
Effect of Noni ( <i>Morinda citrifolia</i> ) Fruit Juice...	14

### Pathology and Parasitology

Blood Parameter Profile and Helminthiasis...	11
Prevalence of GI Helminths in Small Ruminants...	30
Mammary Gland Adenocarcinoma...	70

### Piggery and Poultry Science

Nutritional Profile Comparison of Cow Milk...	09
Turkey Pox in the Cauvery Delta...	72
Lousiness in a Nandanam Variety of Turkey...	77
The Combination Effect of Probiotic...	79
Floor Cleaning Effect of Herbal Mixture...	81

### Pharmacology and Toxicology

Comparative Studies on Preemptive Meloxicam...	24
--	----

### Surgery and Clinical

Surgical Management of Concurrent...	55
External Skeletal Fixation for the Treatment...	57

### Wildlife Science

Therapeutic Management of Gastroenteritis...	66
--	----

## AUTHOR INDEX

Ade Irmalia Harifa,	21,37	Kanagaraju, P.	14	Roopa, K.	09
Ajith Jacob George,	73	Karthickeyan, S.M.K.	43,49	Sabiha Hayath Basha,	52
Ali, M.G.	62	Karunakaran, R.	09	Samuel Masilamoni Ronald, B.	81
Allaie, I.M.	30	Kavitha, S.	59	Sandeep Sodhi Kakkar,	17
Amol Rokde,	66	Kavya, M.	73	Sangaran, A.	77
Ankit Malik,	40	Kokila, S.	55,68	Sarath, T.	59,62
Anoop, S.	57	Krishnakumar, S.	47	Saravanan, M.	47
Anoopraj, R.	73	Krupa, T.L.	73	Sasikala, M.	72
Arunachalam, K.	49	Kumarasamy, P.	43,49	Selvaraj, J.	72
Arunmozhi, N.	59	Kumaravelu, N.	81	Selvaraj, P.	24,34,47
Athira, V.P.	57	Laiju M. Philip,	57	Senthilkumar, S.	24,34
Babuprasath, N.	72	Laksmi Sulmatiw,	21	Shah, M.M.	30
Balasubramanyam, D.	09	Madeena Begum, M.	64,70	Shahardar, R.A.	30
Bedre Sumanth,	73	Manikandan, R.	24,34	Shanmugam, P.S.	27
Bhuvaneshwari, V.	64, 70	Maqbool, I.	30	Shashi Nayyar,	17
Bino Sundar, S.T.	77	Mayank Maithani,	40	Shiv Prasad,	40
Cauveri, D.	49	Mohamed Ali, M.G.	59	Shivam Jar,	66
Cecilia Joseph,	59, 62	Nagarajan, B.	52,76	Siti Eliana Rochmi,	11
Chamundeeswari, G.	85	Naik Madhura,	73	Subapriya, S.	88
Daffine, S.	14	Narayanan, M.K.	57	Subrat Kumar Dash,	17
Devanand, C.B.	57	Naveenkumar, V.	76	Sudarno, Prayogo,	21
Dharmaceelan, S.	24,34	Nikhil Sanjay Rao,	73	Sudarno,	37
Divyalakshmi, D.	81	Omprakash, A.V.	14	Sumathi, D.	52,83,88
Emy Koestanti Sabdoningrum,	79	Pandian, C.	14	Sunanda, C.	73
Erma Safitri,	79	Parameswari, S.	49	Sunil Kumar,	40
Galang Damar Pamenang,	21	Pazhanivel, N.	55,68	Thangadurai, R.	27
Gopalakrishnan, A.	83,88	Pradeep, M.	73	Tharani Kumar, S.	85
Gopi, H.	09	Prasanna Devi, S.	85	Tina Roshini, S.	64,70
Gopinathan, A.	43	Prasanna, K.S.	73	Tri Bhawono Dadi,	11,79
Gunanti Mahasri,	21,37	Priyadharsini, R.	43	Uma Rani, R.	55,68
Gupta, H.P.	40	Pugazharasi, C.	62	Varsha Mary Mathai,	52
Hamza Palekkodan,	73	Pushkin Raj, H.	88	Veeramani, P.	62
Herinda Pertiwi,	11	Radhakrishnan, L.	09	Vidyarani, H.B.	73
Jayakumar, K.	24,34	Rajesh Jindal,	17	Vijaya Bharathi, M.	76
Jayathangaraj, M.G.	83	Ramesh, P.	83,88	Vishnugurubaran, D.	55,68
Jeyakumar, K.	68	Ramkumar, P.K.	47	Wani, Z.A.	30
Jeyaraja, K.	83,88	Ranjeet Harne,	66	Yogeshpriya, S.	47
Jeyathilakan, N.	77	Richard Churchil, R.	14		
Kanaga Devi, M.	59	Richard Jagatheesan, P.N.	43		



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# 14

H Index

