


## Brief Biodata

<b>Name</b>	:	<b>Dr. Avishek Biswas</b>	
<b>Designation</b>	:	HoD & Principal Scientist	
<b>Discipline</b>	:	Cattle Nutrition & Management (CN&M); ICAR-CIRC	
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### ❖ Education qualification

Degree	Subject (s)	Institute
Ph.D.	Animal Nutrition/ Poultry Science	ICAR-Indian Veterinary Research Institute
M.B.A.	Human Resource Development	Manipal University, Jaipur, Rajasthan
M.V.Sc.	Animal Nutrition/ Poultry Science	ICAR-Indian Veterinary Research Institute
B.V.Sc. &A.H.	All the VCI recommended subjects	WB University of Animal & Fishery Sciences

### ❖ Area of research

- ✚ **Nutrigenomics research:** Nutrigenomics research for cattle focuses on how nutrients interact with genes to influence an animal's health and productivity. The goal is to establish nutritional methods that will benefit the animal's health and performance.
- ✚ **Replacement of antibiotic:** Natural antibiotic alternatives, such as probiotics, prebiotics, symbiotics, para-probiotics, postbiotics, organic acids, essential oils, enzymes, immunostimulants, and phytogetic (phytobiotic) feed additives such as herbs, botanicals and essential oils are the most popular feed additives in the livestock/ poultry industry since the ban on antibiotic growth promoters.
- ✚ **Microalgae research:** Microalgae can be utilized as a livestock feed supplement since they provide a sustainable and healthy source of protein, vitamins, and minerals. Microalgae can also aid to enhance the quality of meat and milk.
- ✚ **Omega-3 enriched milk production:** Designer milk production in livestock is a process that uses genetic engineering and biotechnology to alter the composition of milk. The goal is to create milk that has improved nutritional value or is rich in specific components.
- ✚ **Least cost feed formulation (LCF)** is a mathematical process that combines ingredients to create a balanced, cost-effective feed for livestock. LCF is based on the nutrient needs of the animals, the nutrient content of the ingredients, and the price of the ingredients.

❖ Fellowships/Awards etc.	
1.	Awarded ' <i>Fellow of Indian Poultry Science Association (FIPSA)</i> ' during 35th Annual Conference of Indian Poultry Science Association (IPSACON 2017) at Bengaluru, India.
2.	Recipient of the " <b>CSIR Award for S&amp;T Innovation for Rural Development (CAIRD)-2010</b> " for DIHAR's outstanding efforts on the "Development of Cold Arid Agro Animal Technologies for Rural Development in Ladakh Region" (Ref Letter No. 10/CAIRD/2010-PPD, Date:12 Sept. 2012).
3.	Recipient of the ' <i>Titanium Trophy-2010</i> ' under the Best Research Institute category of Defence Research and Development Organization (DRDO), Ministry of Defence, Govt. of India in recognition of DIHAR excellent.
4.	Recipient of the ' <i>Innovation for Indian Award-2010</i> ' under the public service category of Merico Innovation Foundation in recognition of DIHAR excellent work.
5.	Recipient of the ' <i>International Travel Grant-2020</i> ' from World Poultry Science Association (WPSA), Netherland for attend the APSS-2020, Sydney, Australia.
❖ Selected Publications	
1.	Gowthaman V., Sharma, D., Deo, C., Tiwari A.K., <b>Biswas, A*</b> . (2024). Production performance, serum lipid profile and gut health in Indian native Kadaknath chickens fed diet incorporated with liquorice root powder. <b>Heliyon</b> , 10(22): e40230; DOI:10.1016/j.heliyon.2024.e40230 ( <b>NAAS: 10.00; IF: 4.00</b> )
2.	Monika, M., Tyagi, J.S., Sonale, N., <b>Biswas, A.*</b> , Murali, D., Sky, Tiwari, A.K., Rokade, J.J. (2024). Evaluating the efficacy of Lactobacillus acidophilus derived postbiotics on growth metrics, Health, and Gut Integrity in broiler chickens. <b>Scientific Reports</b> , 14(1): 24768; DOI:10.1038/s41598-024-74078-0 ( <b>NAAS: 10.60; IF: 4.60</b> )
3.	<b>Biswas, A.*</b> , Deo, C., Sharma, D., Matin, A., Tiwari, A.K. (2024). Production performance, haematological parameters, serum biochemistry, and expression of HSP-70 in broiler chickens fed dietary ascorbic acid during heat stress. <b>International Journal of Biometeorology</b> , 68(1):33-43; DOI: 10.1007/s00484-023-02568-3 ( <b>NAAS: 9.20; IF: 3.20</b> )
4.	Agashe, J.L., Deo, C., <b>Biswas, A.*</b> , Sharma, D., Nampalle, M.T., Tiwari, A.K. (2024). Adequate levels of zinc and copper on turkey poult performance, immunological response, and skeletal health. <b>Biological Trace Element Research</b> , DOI:10.1007/s12011-024-04257-7 ( <b>NAAS: 9.90; IF: 3.90</b> )
5.	Champati, A., Bhanja, S.K., Rokade, J.J., Nayak, N., Yadav, A.S., <b>Biswas, A.</b> , Sharma, D., Chakma, J., Sky, Misjra, J., Saha, S.K., Agarwal, R.K., Singh, M. (2024). Evaluation of in-feed supplementation of formic acid and thymol as non-antibiotic growth promoters and assessing their effect on antimicrobial resistant <i>E.coli</i> isolated in Turkey. <b>Veterinary Research Communication</b> , <b>48</b> :1741-1754; DOI:10.1007/s11259-024-10353-9. ( <b>NAAS: 8.20; IF: 2.20</b> )
6.	Deo, C., <b>Biswas, A.*</b> , Sharma, D., Tiwari, A.K. (2023): Effects of different concentration of copper

	on performance, immunity and carcass traits in broiler Japanese quails. <b>Biological Trace Element Research</b> , 201(9):4530-4537 (NAAS: 9.90; IF: 3.90)
7.	Deo, C., Biswas, A.*, Sharma, D., Agashe, J.L., Tiwari, A.K. (2023). Effects of various copper sources and concentrations on performance, skeletal growth, and mineral content of excreta in broiler chickens. <b>Biological Trace Element Research</b> , 201(12):5786-5793 (NAAS: 9.90; IF: 3.90)
8.	Tukaram, N.M., Biswas, A.*, Deo, C., Agashe, J.L., Monika, M., Tiwari, A.K. (2022). Effects of paraprobiotic as replacements for antibiotic on performance, immunity, gut health and carcass characteristics in broiler chickens. <b>Scientific Reports</b> , 12:22619, DOI:10.1038/s41598-022-27181-z (NAAS: 10.60; IF: 4.60)
9.	Wani, M.A., Tyagi, Pramod K., Begum, J., Mir, N.A., Dev, K., Biswas, A., Sharma, D., Akshat Goel (2022). Expression of nutrient transporter genes in response to dietary rice gluten meal and protease enzyme supplementation and the consequent effects on growth, nutrient digestibility, immunity and jejunum histomorphometry in chicken. <b>Animal Biotechnology</b> , 33(7):1620-1628 (NAAS: 7.70; IF: 1.70)
10.	Sharma, D., Mir, N.A., Biswas, A.*, Deo, C. (2022). Performance enhancing, immunomodulatory, anti-hyperlipidaemic, and antimicrobial properties of bael ( <i>Aegle marmelos</i> ) leaf powder in broiler chicken. <b>Tropical Animal Health Production</b> , 54:56; DOI:10.1007/s11250-022-03054-5 (NAAS: 7.70; IF: 1.70)
11.	Biswas, A.*, Sharma, D., Tyagi, P.K., Mandal, A.B. (2022). Physio-biochemical, antioxidant and oxidative stability of Turkey meat-fed diet incorporated with different level of organic chromium. <b>Animal Biotechnology</b> 32 (1), 106-112 (NAAS: 7.70; IF: 1.70)
12.	Biswas, A.*, Mohan, N., Dev, K., Mir, N.A., Tiwari, A.K. (2021). Effect of dietary mannan oligosaccharides and fructo-oligosaccharides on physico-chemical indices, antioxidant and oxidative stability of broiler chicken meat. <b>Scientific Reports</b> , 11 (1):20567; DOI: 10.1038/s41598-021-99620-2 (NAAS: 10.60; IF: 4.60)
13.	Dev, K., Begum, J., Biswas, A.*, Mir, N.A., Singh, J., Ravi Prakash, Sonowal, J., Bharali, K., Tomar, S., Rajiv Kant, Ahlawat, N. (2021). Hepatic transcriptome analysis reveals altered lipid metabolism and consequent health indices in chicken supplemented with dietary Bifidobacterium bifidum and mannan-oligosaccharides. <b>Scientific Reports</b> 11:17895; DOI: 10.1038/s41598-021-97467-1 (NAAS: 10.60; IF: 4.60)
14.	Dev, K., Begum, J., Biswas, A.*, (2021). Dietary <i>Lactobacillus acidophilus</i> and <i>Mannan-Oligosaccharides</i> alter the lipid metabolism and health indices in broiler chickens. <b>Probiotics and Antimicrobial Protein</b> , 13:633-646; DOI: 10.1007/s12602-020-09717-9 (NAAS: 10.90; IF: 4.90)
15.	Biswas, A.*, Dev, K., Tyagi, P.K., Mandal, A.B. (2021). The effect of multi-strain probiotics as feed additives on performance, immunity, expression of nutrient transporter genes and gut morphometry in broiler chickens. <b>Animal Bioscience</b> , 35(1):64-74; DOI:10.5713/ab.20.0749 (NAAS: 8.20; IF: 2.20)
16.	Dukare, S., Mir, N.A., Mandal, A.B., Dev, K., Begum, J., Rokade, J.J., Biswas, A.*, Tyagi, Praveen,

	K., Tyagi, Pramod, K., Bhanja, S.K. (2021). A comparative study on the antioxidant status, meat quality, and mineral deposition in broiler chicken fed dietary nano zinc viz-a-viz inorganic zinc. <b>Journal of Food Science and Technology</b> , 58:834-843, DOI:10.1007/s13197-020-04597-x (NAAS: 9.10; IF: 3.10)
17.	Dev, K., Mir, NA., <b>Biswas, A.*</b> , Kannoujia, J., Begum, J., Rajiv, Kant., Mandal, AB. (2020) Dietary synbiotic supplementation improves the growth performance, body antioxidant pool, serum biochemistry, meat quality, and lipid oxidative stability in broiler chickens. <b>Animal Nutrition</b> , 6(3): 325-332 (NAAS: 12.30; IF: 6.30)
18.	Kumar, F., Tyagi, Praveen K., Mir, NA., Dev, K., Begum, J., <b>Biswas, A.*</b> , Sheikh, SA., Tyagi, Pramod K., Sharma, D., Bharti Sahu, Biswas, AK., Deo, C., Mandal, AB (2020). Dietary flaxseed and turmeric are a novel strategy to enrich chicken meat with long chain $\omega$ -3 polyunsaturated fatty acids with better oxidative stability and functional properties. <b>Food Chemistry</b> , 305:125458 (NAAS: 14.80; IF: 8.80)
19.	Dev, K., Mir, N.A., <b>Biswas, A.*</b> , Kannoujia, j., Begum, J., Rajiv Kant (2020). Dietary Mannan-oligosaccharides potentiate the beneficial effects of Bifidobacterium bifidum in broiler chicken. <b>Letters in Applied Microbiology</b> , 71(5): 520-530 (NAAS: 8.40; IF: 2.40)
20.	Dukare, S., Mir, N.A., Mandal, A.B., Dev, K., Begum, J., Tyagi, Praveen K., Rokade, J.J., <b>Biswas, A.</b> , Tyagi, Pramod K., Bhanja, S.K. (2020). Comparative study on the responses of broiler chicken to hot and humid environment supplemented with different dietary levels and sources of selenium. <b>Journal of Thermal Biology</b> , 88:102515 (NAAS: 8.90; IF: 2.90)