

Dr Chandrakanta Jana, PhD

Senior Scientist (Veterinary Pathology)

ICAR-Directorate of Foot and Mouth Disease

Mukteswar, Nainital, Uttarakhand- 263 138 (India)

(E-mail: chandrakanta.jana@icar.gov.in)

Current area of research:

- Cellular pathogenesis of FMD
- Development of cost effective disinfectant against FMDV

Research Publication: 31

- 1) N. Roy, C. **Jana**, B.P. Maiti and M. K. Bhowmik (2002). Alimentary form of lymphosarcoma in a bitch. *Indian Journal of Animal Health*, 41: 149-150.
- 2) C. **Jana**, P. Deb, N. Ray, K. Dhara and M. Mondal (2002). Hepatic abscess in Turkey associated with *Proteus mirabilis*. *Journal of Interacademia*, 6:740-742.
- 3) C. **Jana**, M.K. Bhowmik, K. Purohit, T.K. Mahata and S. Biswas (2002). Epizootiology of pneumonia in Garole sheep. *Journal of Interacademia*, 6: 708-711.
- 4) D. Halder, M.M. Roy, T. K. Mahata, M. K. Bhattachariya, C, **Jana**, A.K. Hui and K. Dhara (2002). Histological structure of the kidney of spotted deer (*cervus axis*). *Journal of Interacademia*, 6: 638-641.
- 5) S. Biswas, A. Goswami, C. **Jana**, A.K. Das and R.N. Pal (2003). Study of broiler chicken production and marketing situation in coastal belt of West Bengal. *Indian Journal of Animal Health*, 42: 51-57.
- 6) K. Purohit, M. K. Bhowmik, P. Deb and C. **Jana** (2003). Pathomorphology of paramphistomosis in Garole sheep. *Indian Journal of Veterinary Pathology*, 27: 134-135

- 7) T. K. Mahata, R. Ghosh, K. Guha, M. K. Bhattachariya and **C. Jana** (2003). Studies on histomorphological architecture of the liver of spotted deer (*Cervus axis*). *Indian Journal of Animal Health*, **42**: 71-74.
- 8) Das, A. K., S. Biswas, M. Sinhamahapatra and **C. Jana** (2004). An approach to scientific and conventional methods of poultry slaughter in view to establish critical control points. *Journal of Meat Science*, **2**: 39-42.
- 9) L. Sailo, A. K. Das, A. Chakraborty, S. Biswas and **C. Jana** (2005). Effect of temperature and various egg shell treatments on quality of egg during storage. *Indian Journal of Animal Health*, **44**: 9-18.
- 10) **C. Jana**, S. Biswas, A. K. Das, S. Sarkar, A. Chakraborty, R. Piri and S. Saha (2005). Acceptability of chicken meat balls prepared from less valued cuts with different fillers. *Journal of Interacademia*, **9**: 573-576.
- 11) **C. Jana**, M. K. Bhowmik and S. Biswas (2005). Pulmonary anthracosis in Garole sheep. *Indian Journal of Animal Health*, **44**: 33-36.
- 12) **C. Jana**, M. K. Bhowmik and T. Sadhukhan (2005). Mycoplasmal pneumonia in Garole sheep. *Veterinarshi Archiv* **75**: 183-188.
- 13) S. Biswas, K. S. Vijayakumar, **C. Jana**, D. Bhattacharyya and M. Sinhamahapatra (2006). Effect of storage on duck meat sausages. *Indian Journal of Poultry Science*, **41**: 74-7.
- 14) H. Singha, A. Mallick, **C. Jana**, D. P. Isore, T. K. Goswami, S. K. Srivastava, V. A. Azevedoo, P. Chaudhuri and M. Owais (2008). Escheriosomes entrapped DNA vaccine co-expressing Cu-Zn Superoxide dismutase and IL18 confers protection against *Brucella abortus*. *Microbes & Infection*. **10**: 1089-1096.
- 15) A.K. Biswas , N. Kondaiah , K.N. Bheilegaonkar , A.S.R. Anjaneyulu , S.K. Mendiratta , **C. Jana** , H. Singh and R.R. Kumar (2008). Microbial profiles

of frozen trimmings and silver sides prepared at Indian buffalo meat packing plants. *Meat Science*, **80**: 418-422.

- 16) H. Singha, A. I. Mallick, **C. Jana**, N. Fatima, M. Owais and P. Chaudhuri (2011). Co-immunization with interleukin-18 enhances the protective efficacy of liposomes encapsulated recombinant Cu-Zn superoxide dismutase protein against *Brucella abortus*. *Vaccine*, **29**: 4720-4727.
- 17) S. K. Biswas, **C. Jana**, K. Chand, W. Rahman and B. Mondal (2011). Detection of fowl poxvirus integrated with reticuloendotheliosis virus sequences from an outbreak in backyard chickens in India; *Veterinari Italian*, **47** (2):147-153.
- 18) C. Maji, S. Sarkar, S. Biswas, P. H. Patra, B. K. Datta, S. Bandyopadhyay, T. K. Biswas, **C. Jana**, T. K. Mandal. (2016). Experimental assessment of arsenic toxicity in garole sheep in India. *Emerging Contaminants*, **2**: 128-134.
- 19) S. Ghatak, A. Singha, A. Sen, C. Guha, A. Ahuja, U. Bhattacharjee, S. Das, N. R. Pradhan, K. Puro, **C. Jana**, T.K. Dey, A. Das, I. Shakuntala, U. Biswas and P. S. Jana (2013). Detection of New Delhi Metallo- beta- lactamase and extended- spectrum beta lactamase genes in *Escherichia coli* isolated from mastitis milk samples. *Transboundary and Emerging Diseases*, **60**: 385-389
- 20) Pallab Chaudhuri, Harisankar Singha, Tapas Kumar Goswami, Dhirender Kumar Singh, **Chandrakanta Jana**, Gunjan Shukla (2013). DNA Prime and Protein Boost Immunization with Combined SOD-L7/L12 Antigen Confers Protection to Mice against *Brucella Abortus* 544 Challenge, *Advances in Animal and Veterinary Sciences*. **1**: 143 – 147.
- 21) P. Das, S. N. Joardar, I. Samanta, P.K. Das, **C. Jana**, D. P. Isore and T.K. Sadhukhan (2013). Isolation and molecular confirmation of avipoxvirus in backyard chicken in West Bengal. *Indian J. Comparative Microbiol. Immunol. Infect. Dis.* **34**: 8-10

- 22) **C. Jana**, F.H. Rahman, S. K. Mondal and A.K. Singh (2014). Management Practices and perceived constraints in goat rearing in Burdwan district of West Bengal. *Indian Res. J. Ext. Edu.***14** (2):107-110.
- 23) P. K. Das, **C. Jana**, T. Parkunan, P.R. Ghosh, S. N. Joardar, G.D.V. Pandiyan, J. Mukherjee and S. Sanyal (2014) *In vitro* effect of radiofrequency on hsp70 gene expression and immune-effector cells of birds. *Advances in Animal and Veterinary Sciences*, **2**:31-36.
- 24) **C. Jana**, S. K. Mukhopadhyay, M. K. Bhowmik, P. S. Mondal, S. Biswas and B. Mondal (2014). Pathological and molecular diagnosis of duck enteritis virus in khaki Campbell ducks in a field outbreak. *Indian Journal of Veterinary Pathology*, **38**:181-185.
- 25) Paul, I., D. P. Isore, S. N. Joardar, S. K. Mukhopadhyay, **C. Jana** and S. Ganguly (2015). Investigation on Methicillin Resistant gene of *Staphylococcus aureus* Causing Bovine Mastitis. *Indian J. Comparative Microbiol. Immunol. Infect. Dis.***36**: 35-38
- 26) P. S. Mandal, S. K. Mukhopadhyay, S. Pradhan, S. Mondal, **C. Jana**, N. C. Patra and R. N. Hansda (2017). Development of nested polymerase chain reaction-based diagnosis of duck enteritis virus and detection of DNA polymerase gene from non-descriptive duck breed of West Bengal, India - *Veterinary World*, **10**: 336-341.
- 27) L. Ralte, S. Baidya , A. Jena, S. Pandit, R. Jas, A. Nandi, S. Taraphder, D. P. Isore, **C. Jana**, R. Ranjan(2017). Detection of *Toxoplasma gondii* targeting the repetitive microsatellite sequence by PCR. *Exploratory Animal and Medical Research*, **7**: 159-164.
- 28) Gurav, **C. Jana**, D. Upadhyay, S.S. Dangi, A.K. Sharma and S. Gautam (2018). A retrospective study of disease prevalence in domestic animals of hill region, *Indian Journal of Animal Sciences* **88**: 276-280

- 29) Gautam, S. Joshi, C., Gurav, A., **Jana, C.** and A.K. Sharma (2018). Morphological diagnosis of Johne's disease: a case report in cattle. *Turkish Journal of Veterinary and Animal Sciences* **42**: 672-675.
- 30) Singh, P., **Jana, C.**, Khulape, Sagar A., Gautam, S. and Ramakrishnan, M.A. (2019). Pathological investigation and molecular characterization of bovine papillomavirus-1 detected in cutaneous warts of cattle. *Indian J. Vet. Pathol.*, **43**: 89-93.
- 31) **Jana, C.**, Amol G., S. Gautam, H. Singh, S. Dangi, M. Sankar (2020). Phenotypic and physiological characteristics of Chaugarkha goat of Uttarakhand. *Indian Journal of small ruminants*. **26**: 120-124.

Popular article: 05

- ❖ **C. Jana**, Karam Chand, M. Sankar D. Muthuchelvan and Putan Singh (2019). CARI-Debendra: A promising strain for backyard poultry rearing at hilly regions of Uttarakhand, **Poultry Valley** (issue 9); 10-14.
- ❖ Gurav, A., **Jana, C.**, Gautam, S, and Dangi, S. (2018). Enzootic bovine haematuria: a disease of concern in the hilly regions. **Indian Farming** 68: 38-40.
- ❖ Singh, P., Joshi, S.K., Singh, R. and **Jana, C.** (2018). Different routes of Vaccination in poultry. **Poultry planner** 21: 23-24.
- ❖ Sarkar, S., Majumdar, B., **Jana, C.**, Goswami, B. and Dutta, J. (2018). Enhancement of livelihood security of tribal farm families of west Bengal: a success story published in **Innovation Farm.**, **3**: 88-93
- ❖ Karam Chand, D. Upadhyay, **C. Jana**, A. Gurav and S. K. Biswas. (2017) *Goshala me rogniyantran hetu prabhavi safai evam visankraman.* in **Pashudhan Prakash** (vol.- VIII)

Technical/ training manual -05

- i. **C. Jana**, A. Gurav, S. Gautam, A.P. Madhusoodan, A. Rialch and M. Sankar (2019). Phenotypic characterization of Chaugarkha: A Local goat breed of Uttarakhand. pp 1-26
- ii. A. Rialch, Kharayat N. S., Madhusoodan A.P., Amol Gurav, S. Gautam, M. Sankar, S. K. Gupta, D. Bisht and **C. Jana** (2019). Health care package of practices for hill goats of Uttarakhand. pp 1-26. (*in Hindi*)
- iii. **C. Jana**, Amol Gurav, S. Gautam, M. Sankar, H. Singh and M.A. Ramakrishnan (2018). Practical manual on general health management of goats at Kumaon hill region (pp-26).
- iv. D. Upadhyay Amol Gurav, M. Sankar and **C. Jana**. (2018). Technical bulletin on goat farming at hills (*parbatiya chhata me bakri palan ka prabandhan*) (pp-26) in hindi
- v. Amol Gurav, **C. Jana**, S.S. Dangi, Karam Chand, S. Gautam and M. Sankar (2017) Training manual on management of livestock in changing climatic scenario at Uttarakhand (*Jalbayu paribatan ke paridhesh me parbatiya kheta me pashudan prabandhan*) (pp-25) in hindi

Technical article- 11

- i. S.S. Dangi, **C. Jana**, Puneet Kumar, V.P. Maurya and Gyanendra Singh (2018). High altitude physiology in 'Recent Advances in stress Genomics for livestock production', Division of Physiology and Climatology, ICAR-Indian Veterinary Research Institute, Izatnagar (UP), India. pp 130-135 (ISBN: 978-93-5300-179-7).
- ii. **Jana, C.** S. Gurav, A., Dangi, S.S., Upadhyay, D. and S. Gautam (2018) Cutaneous papillomatosis in cattle: scenario in hill region of India. In:

- Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp 153-155.
- iii. Gurav, A., Dangi, S.S., Upadhyay, D., Gautam, S. and **Jana, C.** (2018). Factors driving health and productivity of livestock at high altitude in changing climate , In Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp 112-116.
 - iv. Upadhaya, D., Dangi, S. S., **Jana, C.**, Gautam, S. and Gurav, A. (2018). Livestock management practices at high altitude in changing climate. Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp-78-81.
 - v. Upadhaya, D., Gurav, A., **Jana, C.** and Dangi, S. S. (2018). Behaviour and welfare of livestock under changing climate. Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp-73-77.
 - vi. Gurav, A., Dangi, S.S., Gautam, S., Upadhyay, D., and **Jana, C.** (2018). Medicinal plants as destressors. In Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp 105-110.
 - vii. Gautam, S., **Jana, C.**, Upadhyay, D., Gurav, A. and Dangi, S.S. (2018). Pathophysiology of bracken fern at high altitude. In Acclimatization and adaptation of high altitude livestock in changing climatic scenario, published by ICAR-IVRI, Izatnagar, pp 122-126.
 - viii. **Jana, C.**, Gurav Amol and Sankar, M. (2018). Prospects of Chaugarkha as meat goat breed in Kumaon region of Uttarakhand, India. Presented in 8th Conference of Indian Meat Science Association & International

Symposium on “Technological Innovation in Muscle Food Processing for Nutritional Security, Quality and Safety” held at Department of Livestock Products Technology, Faculty of Veterinary and Animal Science, West Bengal University of Animal and Fishery Science, Kolkata-700037 West Bengal, India on November 22-24,2018.

- ix. **C. Jana**, S. S. Dangi and S. Gautam (2017) Common Viral Diseases of Laboratory Mice and Their Diagnosis, published in e-training manual on ‘Practical Approach in Livestock Diseases Diagnosis by using Clinical, Pathological and Molecular Techniques’ by Division of Pathology, ICAR-IVRI, Izatnagar p-78-81.
- x. S. Gautam, Amol Ramdas Gurav and **C. Jana** (2017). Recognizing PPR in Small Ruminants: Clinical, Pathological and Molecular Approaches, published in e-training manual on ‘Practical Approach in Livestock Diseases Diagnosis by using Clinical, Pathological and Molecular Techniques’ by Division of Pathology, ICAR-IVRI, Izatnagar p-78-81.
- xi. S.S. Dangi, Amol G, **C. Jana** and A. K. Sharma (2017). Welfare of birds reared under high altitude conditions in ‘Stress and Welfare: addressing current challenges in Poultry Production’, ICAR-Central avian Research Institute, Izatnagar (UP), India. pp 324-327 (ISBN: 978-93-5279-729-5).

NCBI Genbank accession: 07

- Tamang, R., Singh, P., Ramdas, A.G., Ramakrishnan, M.A., Khulape, S.A. and **Jana, C.** (2019) Deltapapillomavirus 4 isolate BPV_681 major capsid protein (L1) gene, partial cds. (ACCESSION no. MK396096).
- Singh, P., **Jana, C.**, Chaudhary, D. and Kumar, P. (2019) Bovine papillomavirus type 10 isolate M591 major capsid protein (L1) gene, partial cds (accession no MH716237)

- Singh, P., **Jana, C.**, Chaudhary, D., Ramakrishnan, M.A., Tamang, R. and Gautam, S. (2019). Deltapapillomavirus 4 isolate M691 major capsid protein (L1) gene, partial cds. (accession no MK173052).
- C. Jana, S. A. Khulape,. and S.K . Mukhopadhyay (2019). Anatid alphaherpesvirus 1 isolate DEV/Budbud/2011 glycoprotein I (gI) gene, partial cds- (accession no MH745151)
- Mandal, P. S., **Jana, C.**, Mukhopadhyay, S.K., Pradhan, S. and Baidya, S. (2014). Anatid herpesvirus 1 isolate DEV/Atpara/13 UL31 protein gene, partial cds. (accession no. KJ451479)
- **Jana, C.**, Mukhopadhyay, S. K., Biswas, S., Joardar, S.N., Mondal, B., Batabyal, S., Singha, H. and Sadhukkan, T. (2013). Anatid herpesvirus 1 isolate DEV/Nadia/12 thymidine kinase protein (TK) gene, complete cds. (accession no. KF214788).
- **Jana, C.**, Mukhopadhyay, S. K., Biswas, S., Joardar, S. N., Baidya, S., Pradhan, S. P. and Mondal, P. (2013). Anatid herpesvirus 1 isolate DEV/BudBud/11 thymidine kinase protein (TK) gene, complete cds. (accession no. KF214787)

Student guided:

Sl. No	Degree awarded	Discipline	Number of student/ Scholar guided	Guided as
1	M.V. Sc	Veterinary Pathology	02	Chairman of SAC
2	M. V. Sc	Veterinary Virology	01	Member of SAC
3	Ph.D	Veterinary Virology	01	Member of SAC

Research projects information:

- Completed two external funded projects as PI at ICAR-IVRI Mukteswar
- Completed one institute funded projects as PI at ICAR-IVRI Mukteswar
- Completed one institute funded projects as Co-PI at ICAR-IVRI Mukteswar
- Current research project on **Evaluation of efficacy of disinfectants and cleaners against Foot and Mouth Disease virus on environmental surfaces**

Membership in professional bodies

- Life member of Indian Association of Veterinary Pathology
- Life member of Animal Nutrition Association
- Life member of Indian Meat Science Association

Awards and Accolades

i) Best Presentation Award (in 2020):

Amol Gurav, Madhusoodan A. P, Siddharth Gautam, N. S. Kharayat, **C. Jana**, M. Sankar and Ajayta Rialch (2020). Anti-cold stress potential of aswagandha (*Withania somnifera*) in goats, in 38th Annual Convention of ISVM and National Symposium on “Advancement in Veterinary Medicine in Mitigating Challenges to Animal Health” held at Veterinary College, Bengaluru during 5th -7th February, 2020. (as team)

ii) Best Presentation Award (in 2018):

C. Jana, Amol R. Gurav, Karam Chand, D. Chaudhary, D. Muthuchelvan, M.A. Ramakrishnan. 2018. Growth Performance of different poultry breeds at medium altitude of Kumaon region. International symposium on Technological Innovation in Muscle Food Processing for Nutritional

Security, Quality and Safety and 8th conference of Indian meat science association. Organized by Department Of Livestock products technology, West Bengal University of Animal and Fishery Sciences, Kolkata, held during 22.11.2018 - 24.11.2018. (3rd best)

iii) Best Poster Award (in 2019):

C. Jana, Madhusudan AP, Amol R , and D Muthuchelvan, 2019. "Backyard poultry farming with CARI-Debendra for nutrition and economic improvement of hill farmer of Kumaon region". Regional Conference on Himalayan matters in changing world, held at GB pant National institute of Himalayan environment and sustainable development Koshi Katarmal Almora Uttarkhand, during 9-11 December 2019. (2nd best)

iv) Received a shield for delivering lead paper on Prospects of Chaugarkha as meat goat breed in Kumaon region of Uttarakhand, India. Presented in International Symposium on "Technological Innovation in Muscle Food Processing for Nutritional Security, Quality and Safety", held at Department of Livestock Products Technology, Faculty of Veterinary and Animal Science, West Bengal University of Animal and Fishery Science, Kolkata-700037 West Bengal, India on November 22-24, 2018.

v) Received Excellence Award as Reviewer of Indian Journal of Animal Research (ARCC Journal) in 2020.

vi) Recognized as Member of Editorial Board in International Journal of Bio-resource and stress Management (IJBSM; Online ISSN-0976-4038)