



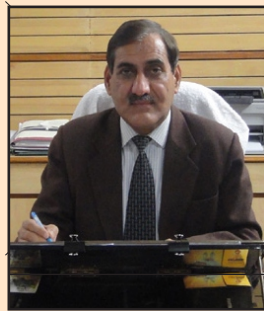
NIHSAD

Newsletter

● First Annual Newsletter of ICAR - NIHSAD ●

From the
Director's
Desk

Season's Greetings and a very Happy New Year 2016 !!



It is my immense pleasure to release the first issue of newsletter of ICAR-National Institute of High Security Animal Diseases. The institute stands as the epitome of prompt diagnosis and is like a lighthouse for tackling the emerging and exotic diseases including the high risk pathogens entering the country. In the recent past, India has witnessed many emerging infections particularly of zoonotic importance. Be it Avian Influenza, Nipah virus infection or Crimean Congo Hemorrhagic Fever, these emerging infectious diseases not only continue to challenge the public health infrastructure but also the capability of the diagnostic services in the nation. The ICAR-NIHSAD has been a forerunner in providing the diagnostic services for emerging diseases to all the animal quarantine centers as well as disease outbreak areas in various parts of the country. The research programs and activities of the institute are multifarious and include rapid disease diagnosis of established pathogens, development of diagnostics and vaccines against emerging pathogens, host-pathogen interactions studies, risk analysis, molecular epidemiology and environmental studies for pathogen survival etc. Among the emerging threats, Avian Influenza, particularly H5N1 subtype continues to concern poultry industry. During 2015, outbreaks of H5N1 virus infection in poultry occurred in the States of Telangana, Uttar Pradesh, Kerala and Manipur and two H9N2 outbreaks, one each from Uttarakhand and Gujarat. The Highly Pathogenic Avian Influenza virus (HPAI) again crossed the species barrier and this time targeted crows. Besides this, other subtypes, H3N8 and H4N6 have also been identified this year. The good news though is that they are all susceptible to the currently approved antiviral drugs used for stockpiling in case of eventuality of infection crossing to humans.

Keeping in sync, with the vigil for emerging and re-emerging diseases, the institute has identified and isolated the Border disease virus from sheep and Porcine Reproductive and Respiratory virus from pig. A new variant of Bovine Viral Diarrhoea virus has also been identified. Infection like Malignant Catarrhal Fever has been identified from diverse species including pigs and bison. The institute has capacitated itself with expertise in reverse genetics, and transcriptome analysis and is forging ahead in development of vaccine and diagnostics, and unravelling the secrets of pathogenomics. The need of the hour is to provide a quick and accurate diagnostic to the farmers and work has been initiated in that direction.

First foundation day was celebrated on 8th of August with release of 'Institute Profile' and 'Vision-2050'. Swachh Bharat Abhiyan has also brought about perceptible changes in the premises inside, as well as outside the campus of the institute. The institute being a forerunner in the area of biosafety, has organized awareness programs on the concepts of biosafety, biosecurity and pathogen inventory management and also trainings for capacity building in the diagnosis of avian influenza and bovine viral diarrhoea. In all, the institute is poised for reaching greater heights. I am pleased to present this first issue of newsletter of ICAR-NIHSAD to its readers.

(V.P. Singh)

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Editorial Board

Editors

- Dr. Richa Sood, Sr. Scientist
- Dr. Naveen Kumar, Scientist

Technical Assistance

- Mr. B.C. Kandpal, AAO

Photo Courtesy

- Mr. Som Kumar, STA

RESEARCH HIGHLIGHTS

Characterization of Influenza A viruses

(S. Nagrajan, C. Tosh, R. Sood, M. Kumar, H.V. Murugkar and Kh. Victoria Chanu)

H5N1 viruses possessing multiple basic amino acids (arginine/lysine) at their Haemagglutinin (HA) cleavage site were isolated from chickens, ducks, turkey and crow from Uttar Pradesh (3), Manipur (1), Telangana (1) and Kerala (1) in 2015. The intravenous pathogenicity index (IVPI) of 2.925 to 2.97 of H5N1 viruses isolated from Chattisgarh (1), Telangana (1) and Kerala (1) indicated their high pathogenicity to poultry. The IVPI of one H9N2 virus from Uttarakhand was 0.18 and that of H3N8 virus from Kerala and H4N6 virus from Jharkhand was 0.00 indicating that they are low pathogenic to poultry. Genetic analysis of H9N2 virus outbreaks from Uttarakhand and Gujarat indicated that both the viruses belonged to G1 lineage same as the earlier H9N2 viruses circulating in India. Genomic (sequencing of neuraminidase gene) and Phenotypic analysis (enzyme based Neuraminidase Inhibition Assay) revealed that all isolates of Highly Pathogenic Avian Influenza H5N1 isolated so far in 2015 were susceptible to the two currently approved FDA drugs, oseltamivir and zanamivir. Low pathogenic avian

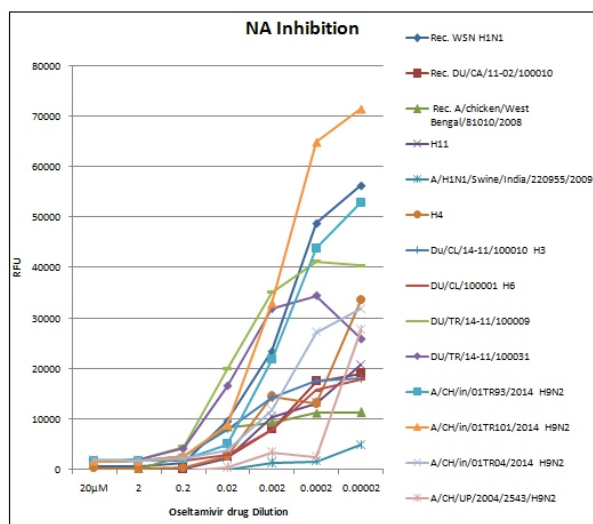


Fig. 1: Neuraminidase (NA) inhibition activity curve of Influenza viruses other than H5N1 subtype

Influenza isolates, of other subtypes, H9N2 (3), H3N8 (4), H4N6 (1), H6N8 (1) and H11N9 were also tested and found to be susceptible to oseltamivir and zanamivir (Figure 1).

Evolutionary analysis of reassortant H5N1 viruses circulating in India

(C. Tosh, S. Nagrajan, M. Kumar, G. Venkatesh and H.V. Murugkar)

All the H5N1 viruses isolated in 2015 when compared with previous isolations, grouped into two distinct phylogenetic clades in the HA tree (Figure 2). The viruses isolated in Telangana and Manipur grouped with clade 2.3.2.1a, whereas the H5N1 viruses isolated from Uttar Pradesh grouped with clade 2.3.2.1c. Phylogenetic analysis indicated that the clade 2.3.2.1a virus isolated from Manipur is a non-reassortant virus, the clade 2.3.2.1a virus isolated from Telangana is a triple reassortant virus with PA,

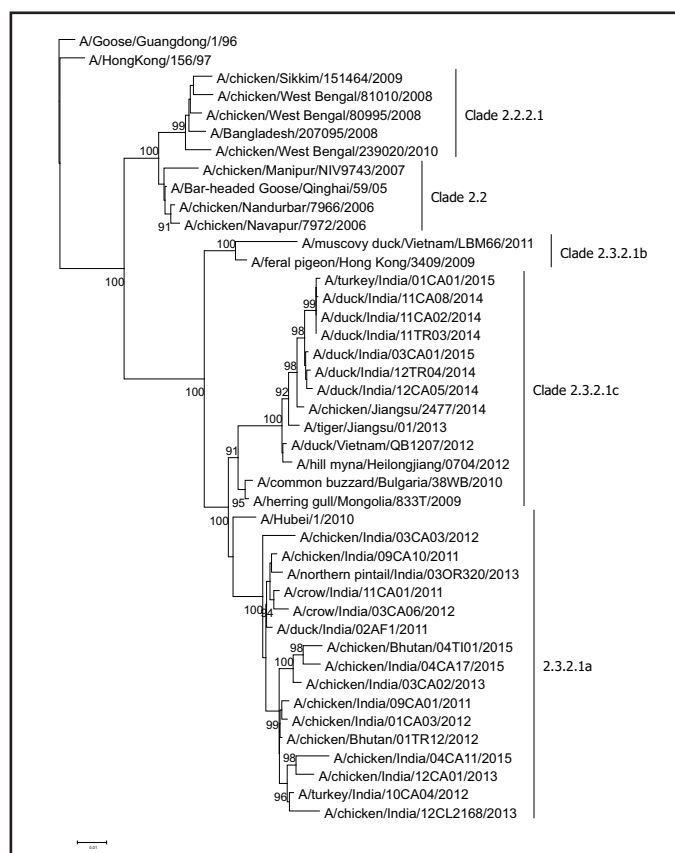


Fig. 2: Phylogenetic relationship of H5N1 viruses isolated in India

PB1 and NS genes of H9N2 virus and the clade 2.3.2.1c virus isolated from Uttar Pradesh is a reassortant virus with PB2 gene of H9N2 virus. This indicates that three types of H5N1 viruses with different gene constellations are currently circulating in the country.

Isolation and identification of Porcine Reproductive and Respiratory Syndrome Virus by immunoperoxidase monolayer assay and electron microscopy

(K. Rajukumar, Senthil Kumar D., D. D. Kulkarni)

Characteristic CPE comprising of rounding, clumping and detachment of cells was observed on a monolayer of pulmonary alveolar macrophages (PAM) in two serum samples submitted for diagnosis of porcine reproductive and respiratory syndrome from Mizoram and Meghalaya. The isolation was further confirmed by immunoperoxidase monolayer assay (IPMA) and electron microscopy. For IPMA, MARC-145 cells were inoculated with infected PAM cultures and immunostained using porcine anti-PRRSV (rN) hyperimmune serum, anti-pig IgG-HRP and AEC/H₂O₂. Presence of PRRSV was observed as brownish red staining in the cytoplasm and nucleus of the infected cells (Figure 3A). For EM, infected PAM supernatants were adsorbed onto formvar/carbon coated copper grids and negatively stained with 2% phosphotungstic acid. Virus particles resembling *Arterivirus* of around 80 to 100 nm were observed under TEM (JEM-1400, Jeol) (Figure 3B). This is the first report on electron microscopic demonstration of PRRSV from India.

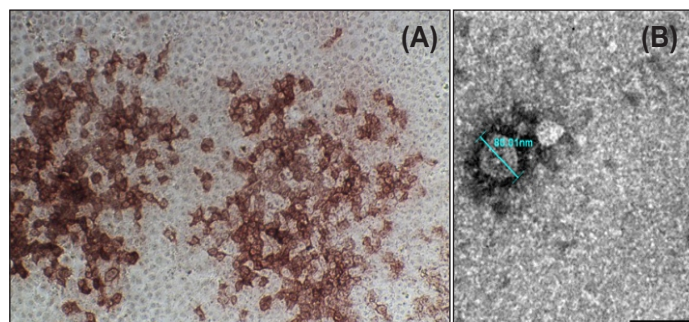


Fig. 3: (A) Immunoperoxidase monolayer assay for PRRSV detection; (B) Electron micrograph of PRRSV virus isolated from India, Phosphotungstic acid, Bar = 100nm

First report of BVDV-3, an emerging pestivirus in Indian cattle

(N. Mishra, K. Rajukumar, A.K. Pateriya and M. Kumar)

BVDV-3, an emerging bovine pestivirus was identified and isolated for the first time in naturally infected Indian cattle. Molecular characterization identified the circulation of two lineages of BVDV-3 viruses in India that are novel and divergent to those circulating in other countries, highlighting the independent evolution of at least three lineages of BVDV-3 viruses globally (Figure 4). Additionally, it was demonstrated that commercially available BVDV E^{ms} based antigen ELISA is able to detect the highly divergent Indian BVDV-3 strains, but NS3 based antigen ELISA fails to detect them.

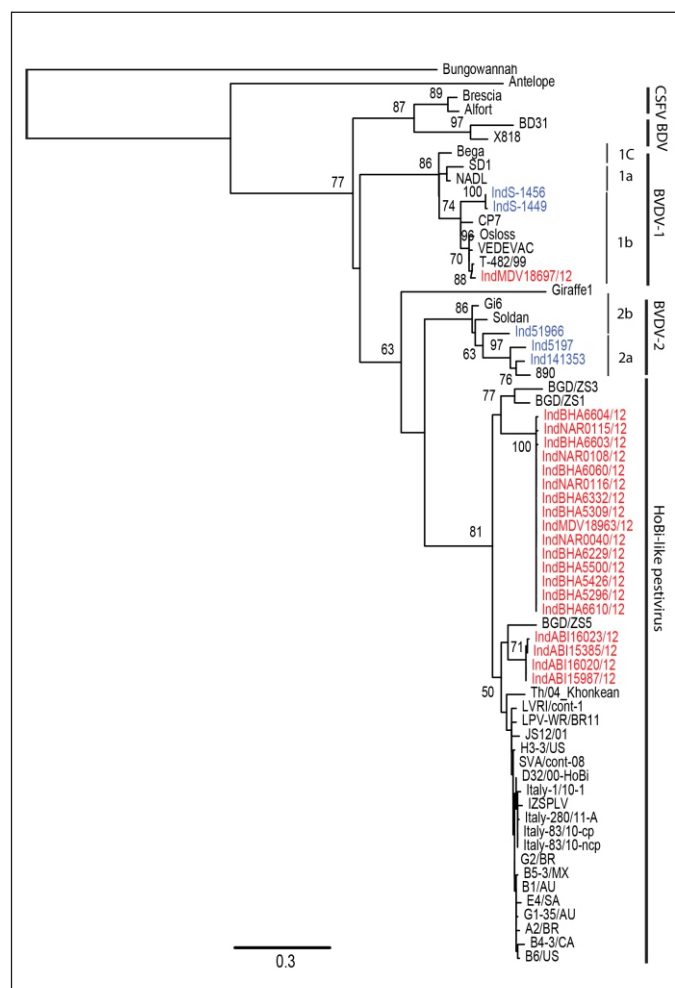


Fig. 4: Phylogenetic analysis of Bovine Viral Diarrhea viruses

Identification and isolation of Border Disease Virus (BDV) in sheep

(N. Mishra, K. Rajukumar and S. Kalaiyarasu)

Border disease virus (BDV) was identified and isolated from Indian sheep. A total of eight BDV isolates were recovered from sheep in the state of Jammu & Kashmir. Genetic and antigenic analysis revealed that the BDV isolates belong to BDV-3 genotype and introduction of BDV through the trade of sheep from other countries is probable. Identification of BDV-3 genotype in sheep in India provides evidence that BDV-3 is not only found in several countries in Europe but also in Asia. It was also found that molecular methods such as real time RT-PCR is more useful than commercial BVDV Ag-ELISA for identification of BDV in sheep.

Emergence of naturally transmitted sheep associated malignant catarrhal fever in diverse ruminant species

(R. Sood, Kh. Victoria Chanu, M. Kumar)

A series of clinical cases of sheep-associated malignant catarrhal fever (SA-MCF) have been recorded in susceptible species in Karnataka, Tamil Nadu and Mizoram within a span of 2 years. The first case was recorded in a captive bison in the year 2013 with typical symptoms of SA-MCF followed by fatal cases in cattle from in and around Bengaluru. Subsequently, fatal clinical cases were also diagnosed in buffaloes from Namakkal. The sheep blood samples collected subsequently from the neighbouring areas of Bengaluru and Namakkal also showed presence of OvHV-2 genome indicating a nidus of infection in the states. OIE approved test for genomic detection of OvHV-2 tegument gene was carried out for the diagnosis. Very recently one of the cattle samples submitted from Mizoram was diagnosed for MCF and ailing pig samples also submitted from the same place were diagnosed as positive indicating the far and wide spread of the disease. The laboratory test results of positive samples were further confirmed by nucleotide sequencing of the OIE approved portion of tegument

gene as well as complete glycoprotein gene, ORF 8 region of the OvHV-2 genome. A diagnostic vigil for the disease as well as a control strategy needs to be formulated for the prevention of economic losses incurred by this fatal infection.

Duck gut virome profiling by Next Generation Sequencing (NGS) of viral metagenome

(A.A. Raut, A. Mishra, H.V. Murugkar, D.D. Kulkarni)

The complete virome of duck gut was catalogued by viral metagenome approach and Next Generation Sequencing (NGS). A protocol for the purification of virome from cloacal and oropharyngeal swabs, NGS and data analysis to generate the viral metagenome data has been standardized. Based on sequence similarities, the duck gut was found to harbor plant, insect and animal viruses apart from a majority of bacteriophages. The hostwise and familywise distribution of identified non-bacteriophage viral sequence hits is given in figures 5A and 5B respectively.

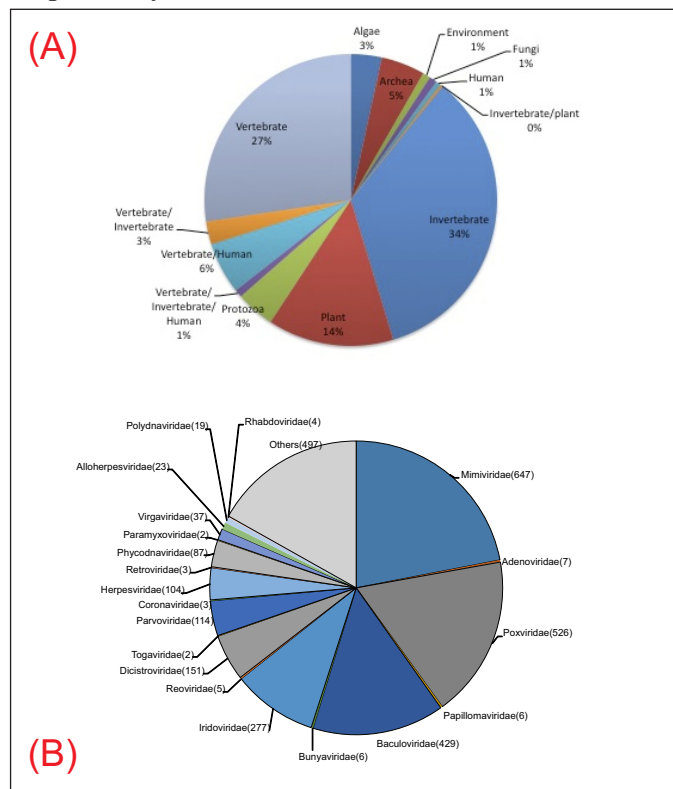


Fig. 5: Distribution of non-bacteriophage viruses identified in duck gut viral metagenome (A) Host-wise (B) Family-wise

Diagnostic preparedness for Hantaan, Nairobi Sheep Disease and Schmallenberg Viruses

(A.A. Raut, S.B. Sudhakar, P. Gandhale, A. Mishra, D.D. Kulkarni)

Using synthetic gene constructs, the nucleoproteins of Hantaan, Nairobi Sheep Disease and Schmallenberg viruses have been expressed in *E. coli* Rosetta-gami (DE3) pLysS host cells. These recombinant proteins will be further used for the development of diagnostics for the respective diseases, thus adding to the in-house diagnostic preparedness.



FESTIVITIES

First Foundation day celebrations

The first foundation day of ICAR-NIHSAD was celebrated on 8th Aug., 2015 to commemorate the establishment of ICAR-National Institute High Security Animal Diseases as an independent National Institute under Indian Council of Agricultural Research. Previously, this institute was known as High Security Animal Disease Laboratory (HSADL) working under the aegis of ICAR-Indian Veterinary Research Institute, Izatnagar. On this occasion, Dr. B.N. Singh, Managing Director & Registrar, RKDF University, Bhopal, M.P. and Dr. S.C. Dubey, Former Joint Director, HSADL released ICAR-NIHSAD 'Vision 2050' and 'Institute Profile', respectively.



Celebration of the first foundation day of ICAR-NIHSAD



Release of ICAR-NIHSAD 'Vision 2050' and 'Institute Profile'

Republic day celebrations

The 67th Republic day (26th Jan., 2016) was celebrated with hoisting of the National Flag by Director, Dr. V.P. Singh. The first telephone directory of ICAR-NIHSAD was released on this occasion. A number of events like musical chair, cultural program by children, cycle race, lemon race and volleyball match were also organized.



Release of first telephone directory of ICAR-NIHSAD



Musical chair competition on the Republic day



Games organized on the Republic day



Farmer's meet in progress

EXTENSION ACTIVITIES

Farmer's meet

An interactive farmer's meet was organized on 6th June, 2015 at the institute for addressing the challenges faced by the poultry farmers due to bird flu. The meet was organized in association with Telangana State Poultry Farmers for addressing their concerns in management of poultry farming in wake of recent outbreaks of highly pathogenic avian influenza H5N1 in Telangana and other states. Twenty two representatives of poultry farmers/breeders/State Associations of Poultry Farmers/National Egg Coordination Committee members from 7 states (Telangana, Andhra Pradesh, Maharashtra, Karnataka, Tamil Nadu, Madhya Pradesh and Chhattisgarh) attended the meet. The meeting provided basic information on Avian Influenza in the country, the remedial measures and the surveillance of poultry for the disease incidences. Former FAO Expert and our RAC chairman, Dr. M.S. Oberoi guided the deliberations with his wide experience of Emergency Control Program of Avian Influenza and other Trans-boundary Animal Diseases in South Asia, in addition to the scientific team from NIHSAD. The remedial measures in terms of enhancing the farm biosecurity, general hygiene, and the emergency protocols were also discussed at length.

EVENTS

Cleanliness crusade under Swachh Bharat Abhiyan

A cleanliness drive under "Swachh Bharat Abhiyan" was organized at the institute from 26th Sept. to 31st Oct., 2015. On this occasion, the Director, ICAR-NIHSAD in his inaugural speech especially emphasized to make the campus and surrounding area, a 'polythene free zone'. All the members actively participated and disposed of non-biodegradable materials scattered in and around the campus. An awareness lecture on "Environment pollution, waste disposal and its control measures" by Er. H.S. Malviya, M.P. Pollution Control Board, Bhopal was



Cleanliness drive at the NIHSAD campus

organized. In addition, all the vehicles used by members of ICAR-NIHSAD were checked for carbon monoxide emission and issued Pollution Under Control (PUC) certificates.



Awareness lecture on “Environment Pollution, Waste Disposal and its Control Measures”

Hindi Pakhwara

“Hindi Pakhwara” was observed at ICAR-NIHSAD from 14th-30th Sept., 2015 to promote the use of Hindi language in day-to-day and administrative working. Many activities and competitions like hindi dictation, hindi typing, letter writing, poetry recitation, usage of phrases and idioms, technical and non-technical word translations etc. were conducted. More than eighty participants including children of the staff actively



Director’s address on the occasion of Hindi Pakhwara

participated. The celebrations ended with prize distribution on 6th Oct., 2015 with an emphasis on increased usage of hindi language in the official communications.

Vigilance Awareness Week

The Vigilance Awareness Week was observed at ICAR-NIHSAD during 26th to 31st Oct., 2015. The week began with administering of the pledge to the staff and students of the Institute by Director, ICAR-NIHSAD, Bhopal on 26th October in the Institute auditorium. In his remarks, the Director stressed upon the importance of transparency, punctuality and integrity at all levels of staff for effective implementation of preventive vigilance. Dr. Niranjana Mishra, Principal Scientist and Vigilance Officer, deliberated upon the importance of “Preventive Vigilance as a tool of Good Governance” and described the purpose, sources and measures of preventive vigilance. Several posters depicting vigilance awareness and corruption in public life were displayed.

ICAR Central Zone Sports Tournament

A 12 member's team of ICAR-NIHSAD including, scientists, technical staff, administration and supporting staff actively participated in different games events in ICAR Central Zonal Tournament-2015 held at Directorate of Weed Research, Jabalpur, M.P. from 7th to 11th Dec., 2015.



The Table Tennis team of NIHSAD in action at the ICAR Central Zonal Sports Tournament



The Volley ball team of NIHSAD

'Jai Kisan Jai Vigyan' Week

'Jai Kisan Jai Vigyan' Week was celebrated from 23rd - 29th Dec., 2015. On this occasion, a debate competition on the topic "Genetically Modified Foods: Worth the Risk?" was organized on 29th Dec. Emphasis on the joint role of scientists in the laboratory, and farmer in the field, in ensuring food security was elaborated upon. Active and lively participation of all the students/ research fellows and the staff of the institute made the program a great success. The celebration ended with prize distribution to those securing first, second and third positions in this debate competition.



Inaugural ceremony of 'Jai Kisan Jai Vigyan' week



Prize distribution in debate competition

Meetings

Mid-year Institute Research Council (IRC) meeting was held on 19th Dec., 2015 under the chairmanship of Dr. V.P. Singh, Director, ICAR-NIHSAD. A total of seven institute funded, five ICAR funded, and six externally funded projects were critically reviewed and monitored during the mid-year IRC meeting. The Director emphasized the need to form research groups (each group consisting of microbiologist, biotechnologist and pathologist) to improve working efficiency and encouraged scientists to seek funding of research projects from external funding agencies.

24th Institute Animal Ethics Committee (IAEC) meeting was conducted on 31st Oct., 2015.



Inspection of animal holding shed by CPCSEA nominee

The CPCSEA nominee, Dr. B.S. Karada did the inspection of animal receiving and holding shed and appreciated the standards maintained. The members reviewed the ongoing projects and approved the new projects for animal experimentation.

Second Institute Management Committee meeting was conducted on 28th Nov., 2016 under the chairmanship of Director. Members of committee viz Dr. A.K. Garg, Joint Director (Extension), IVRI, Izatnagar; Dr. Madhu Swamy, Professor and Head (Pathology), JNKVV, Jabalpur; Dr. R.P. Singh, Head, Division of Biological Products, IVRI, Izatnagar; Mr. A.K. Maheshwari, Accounts and Finance officer, Directorate of Soyabean Research, Indore along with internal members, Dr. H.V. Murugkar and Dr. Sandeep Bhatia attended the meeting.



Second Institute Management Committee meeting

TRAININGS & WORKSHOPS

- A training program on '**Laboratory Biosafety and Biosecurity for Handling Transboundary Animal Pathogens**' under DBT-NER-ADSAHD scheme was organized at NIHSAD, Bhopal from 25th February to 3rd March, 2015. Six participants from Nagaland, Meghalaya, Mizoram and Madhya Pradesh states attended the training.
- Training program on "**Laboratory Diagnosis of Avian Influenza and Bovine Viral Diarrhea**" was conducted in two batches, from 19-26th Aug.



First batch (19-26th Aug., 2015) participants from SRDDL, Bangalore; NRRDL, Jalandhar ; CADRAD, IVRI, Bareilly



Hands on training for participants

and 2 -9th Sept., 2015. Representative personnel from SRDDL, Bangalore; NRRDL, Jalandhar; NERDDL Guwahati; ERDDL Kolkatta; WRDDL, Pune and CADRAD, IVRI, Bareilly, were imparted training in all the conventional and molecular techniques for diagnosis of avian influenza as well as bovine viral diarrhoea.

- Two day **International Biosafety awareness workshop, "Culture of Responsibility and Pathogen Inventory Management"** was jointly organized by ICAR, American Society for Microbiology, USA and Society for Biosafety, India on 12-13th March, 2015. International expert, Dr. Natasha Griffith, Director,

Biocontainment Facility at University of California, Los Angeles delivered a lecture on international biosafety awareness. More than 100 participants from various disciplines attended the workshop.



International Biosafety Awareness workshop

CAPACITY BUILDING

Dr. G. Venkatesh, Senior Scientist attended three days training programme entitled "Diagnostic Test Course: Principles and Latest Developments of Diagnostic Test and Laboratory Quality Control Methods" at Biostatistics Resource and Training Centre, Dept. of Biostatistics, Christian Medical College, Bagayam, Vellore from Sept. 7 - 9, 2015.

Dr. A. K. Pateriya, Scientist attended a sensitization workshop on "Mera Gaon Mera Gaurav" organized at ICAR-ATARI, Jabalpur on 14 Oct., 2015.

Dr. Kh. Victoria Chanu, Scientist attended 21 days ICAR winter school training programme on "Analysis of High Throughput Sequencing and Microarray Data to Unravel Host-Pathogen Interaction" from Nov. 17 to Dec. 7, 2015 at IVRI, Izatnagar (U.P.).

Dr. Naveen Kumar, Scientist attended three months professional attachment training at National Research Centre on Equines, Hisar from 14th May to 21th Aug., 2015.

Dr. Siddharth Gautam, Scientist attended three months professional attachment training at Department of Animal Biotechnology, Anand Agricultural University, Anand, Gujarat from 14th May to 13th Aug., 2015.

TALKS

Dr. V.P. Singh, Director, ICAR-NIHSAD delivered a talk on "Healthy soil for healthy life" in the workshop organized at Indian Institute of Soil Science, Bhopal during the celebrations of "World Soil Day" on 19th Nov., 2015.

Dr. A.K. Pateriya delivered a radio talk on "Opportunities for Biotechnologist in Animal Health" at All India Radio Bhopal on 13th Feb., 2015.

HONOURS & AWARDS

Dr. V.P. Singh, Director, ICAR-NIHSAD, Bhopal has been nominated as President of Society for Biosafety, India.

Dr. R.K. Singh, Director, ICAR-IVRI, Izatnagar and **Dr. D.D. Kulkarni**, Pr. Scientist, ICAR-NIHSAD, Bhopal have been elected as Vice-President of Society for Biosafety, India.

Dr. R. Sood and **Dr. G. Venkatesh**, Sr. Scientists have been elected as Secretary and Treasurer of Society for biosafety, India, respectively.

Dr. A.A. Raut, Sr. Scientist has been nominated as member for ICAR-ICMR Joint Working group on Zoonosis.

Dr. K. Rajukumar, Sr. Scientist has been elected as Member of Institute Animal Ethics Committee of Barkatulla University, Bhopal, India.

Dr. S. Nagarajan, Sr. Scientist has been elected as Member of Executive committee of the Society for Biosafety, India.

Mr. B.K. Singh, Assistant awarded a Certificate of Distinction and a cash award of Rs. 50,000/- under Cash Award Scheme under Administrative category Employees of ICAR.

VISIT ABROAD

Dr. C. Tosh attended OIE global conference on biological threat reduction entitled “Building cooperation for efficient health and security systems worldwide” held at Paris, France from 30th June to 2nd July, 2015.

DISTINGUISHED VISITORS

Prof. David W. Burt, Chair Comparative Genomics, Roslin Institute, University of Edinburgh, UK visited NIHSAD for the Annual Review Workshop under the DBT-BBSRC funded Project with Rosalin Institute “Identification of the molecular basis of differential host responses to rapidly evolving Avian Influenza viruses in different avian species”



Prof. David W. Burt, Roslin Institute, University of Edinburgh, UK with NIHSAD faculty

Dr. Natasha Griffith, Director of High Containment Facilities at the University of California, Los Angeles (UCLA) USA visited NIHSAD on the occasion of workshop on “Culture of Responsibility and Pathogen Inventory Management” held on 12th -13th Mar., 2015. She interacted with more than 100 participants of the workshop on the topics of Responsible Research and Pathogen Inventory Management. The working of biosafety cabinets was discussed in detail and its usefulness was appreciated by the participants.



Dr. Natasha Griffith delivering a lecture on International Biosafety Awareness

PERSONALIA

Joinings



Dr. V.P. Singh, Joint Director (Academic) at ICAR-Indian Veterinary Research Institute, Izatnagar joined as Director, ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 09.09.2015.



Dr. S.B. Sudhakar, Scientist at ICAR-Indian Veterinary Research Institute, Mukteshwar, after his transfer, joined as Scientist, ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 05.01.2015.



Dr. Naveen Kumar, Scientist (Veterinary Microbiology) joined at ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 10.04.2015.

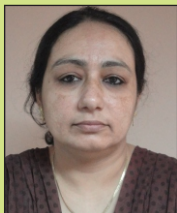


Dr. Siddharth Gautam, Scientist (Veterinary Pathology) joined at ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 10.04.2015.

Promotions



Mr. B.C. Kandpal, Assistant at ICAR-National Institute of High Security Animal Diseases, Bhopal promoted to Assistant Administrative Officer w.e.f. 17.01.2015.



Mrs. M. Bilgrami, Lower Divisional Clerk at ICAR-National Institute of High Security Animal Diseases, Bhopal promoted to Upper Divisional Clerk w.e.f. 17.01.2015.

Retirements



Er. T.K. Ghosh, Chief Technical Officer (Electrical) retired from ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 31.12.2015.



Er. R.B. Srivastava, Chief Technical Officer (Civil) retired from ICAR-National Institute of High Security Animal Diseases, Bhopal w.e.f. 31.1.2016.



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