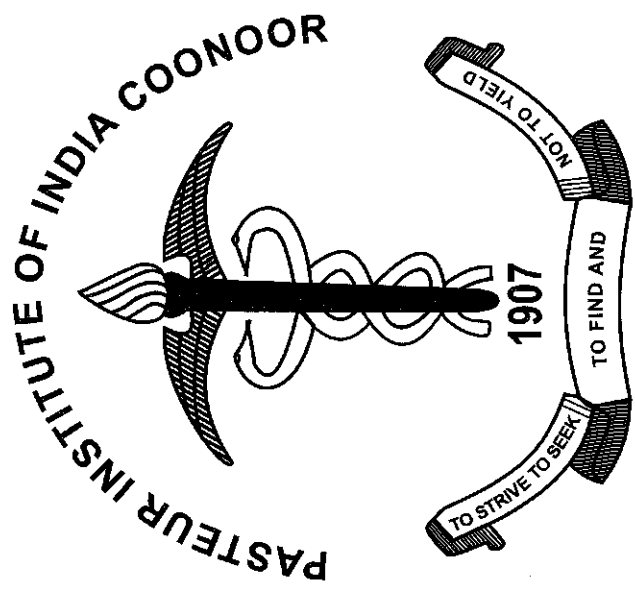


PASTEUR INSTITUTE OF INDIA
COONOR 643 103, NILGIRIS
TAMILNADU



To strive to seek to find and not to yield

ANNUAL REPORT
2015-16

DIRECTOR**Dr. B. SEKAR, M.D.,****ASSISTANT DIRECTORS**Dr. K.N. Venkataramana, M.B.B.S. D.M.V.,
(Superannuated on 31.05.2015)

Dr. B. Sundaran, M.Sc., Ph.D.,

Dr. (Smt.) Jeeva Kalaiselvan, M.B.B.S.,

QUALITY ASSURANCE AND QUALITY**CONTROL DEPARTMENT****SENIOR RESEARCH OFFICER**

Shri C. Palaniappan, M.Sc., D.M.L.T.,

RESEARCH OFFICERS

Shri R. Mohan, M.Sc.,

ASSISTANT RESEARCH OFFICER

Dr. N. Sivananda, M.Sc., M.Phil., Ph.D., M.Ed., M.Phil., PGDCA, DIPC.,

SENIOR RESEARCH ASSISTANT

Shri T. Sekar, M.Sc., M.Phil.,

PRODUCTION DIVISION**TISSUE CULTURE ANTI RABIES VACCINE****RESEARCH OFFICER**

Dr. A. Premkumar, M.Sc., Ph.D.,

ASSISTANT RESEARCH OFFICERS

Shri Jason Muthukumar Jeyacross, M.Sc.,

Dr. S. Jagannathan, M.Sc., MBA, PGDBI., Ph.D.,

DPT GROUP OF VACCINES**RESEARCH OFFICERS**

Smt. Savithri Sundaran, M.Sc.,

Smt. Shanthi Mani, M.Sc.,

ASSISTANT RESEARCH OFFICERS

Dr. K.C. Shivanandappa, M.Sc., Ph.D.,

Smt. T. Lalitha, M.Sc.,

Smt. Chandra Charles, M.Sc.,

Shri B. Annamalai, M.Sc., P.GD.M.L.T.,

ASSISTANT TECHNICAL OFFICERS

Shri V. Manoharan, M.Com., PGDMM

Shri K. Murthy

*No strive to seek to find and not to yield***ADMINISTRATIVE SECTION****ADMINISTRATIVE OFFICER**

Shri A. Vairamoorthy, M.A., M.L., M.H.R.M.,

SENIOR P.A. TO DIRECTOR

Shri P. Sasikumar, B.Com., M.A., P.G.D.M.M

ASSISTANT TECHNICAL OFFICER

Shri K. Krishnamurthy

ACCOUNTS DEPARTMENT**ACCOUNTS OFFICER**

Vacant

PURCHASE, STORES DEPARTMENT**STORES OFFICER**

Shri S. Chandrasekaran, B.Com., M.A.,

LABORATORY ANIMAL DIVISION**VETERINARY ASSISTANT SURGEON**Dr. Anjan Jyoti Nath, M.V.Sc.,
(opted V.R.S. on 15.12.2015)**ASSISTANT RESEARCH OFFICER**

Dr. C. Muniandi, M.Sc., Ph.D.,

LIBRARY**LIBRARY AND INFORMATION OFFICER**

Vacant

MAINTENANCE SECTION**MAINTENANCE OFFICER**Shri J. Kamaludeen
(superannuated on 31.10.2015)**DISPENSARY****SENIOR MEDICAL OFFICER**

Dr. (Smt) Sibani Barman, M.B.B.S.,

MEDICAL OFFICER

Dr. Samyak Sahu, M.B.B.S.,

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DIRECTOR'S MESSAGE



The reporting year has witnessed an array of activities on the establishment of cGMP manufacturing facility for DPT group of vaccines. Our officers and staff have actively participated in pre-bid meetings of critical equipments like Fabricated equipments, Waste water treatment plant, Diesel generators etc... This year we have conducted Factory Acceptance Test (FAT) for equipments like Microfiltration, Ultra-filtration, Sterilization equipment packages, Seed fermentors etc. All these activities moved the cGMP project forward.

The third, fourth and fifth Local Monitory Committee Meetings to assess the progress of cGMP project were conducted with Dr. S. Manivannan, Deputy Drugs Controller (I), CDSCO, South Zone, Chennai as Special Invitee. The fourth LMC meeting held in October 2015 was attended by Joint Secretary (TC) also. In all these meetings the critical concerns on different areas and time line of different activities of the project were discussed, keeping in mind the commitment of establishing the quality infrastructure with-in the scheduled time line.

As part of the activity for assessing Rabies Free Status of Nilgiris District, the Department of Public Health and Preventive Medicine, Tamil Nadu has organized the review meeting among all the stack-holders of the Co-ordination committee formed by the District Collector of Nilgiris at PII, Coonoor in the month of September with the technical support rendered by PII, Coonoor. This would take forward the situation of Rabies in Nilgiris district to declare Nilgiris Rabies-free in near future

This year this Institute has signed a MoU with TWAD board, Govt. of Tamil Nadu, in the month of November for the supply of 2.9 lakh litres of water per day. This would ensure the entire water requirement for our upcoming cGMP project.

In commemoration of the death anniversary of Louis Pasteur, this year also we observed 'World Rabies Day' on 28th September, 2015. With an objective of creating awareness on the importance of vaccines, we organized various competitions among school children; Drawing Competition on the topic "Health and Environment, Essay Writing competition on the topic "Vaccine and Disease prevention" and Quiz Competitions on the topic "Role of vaccine in human health" and prizes were distributed. This gave an opportunity for the school children to show-cause their knowledge on vaccines.

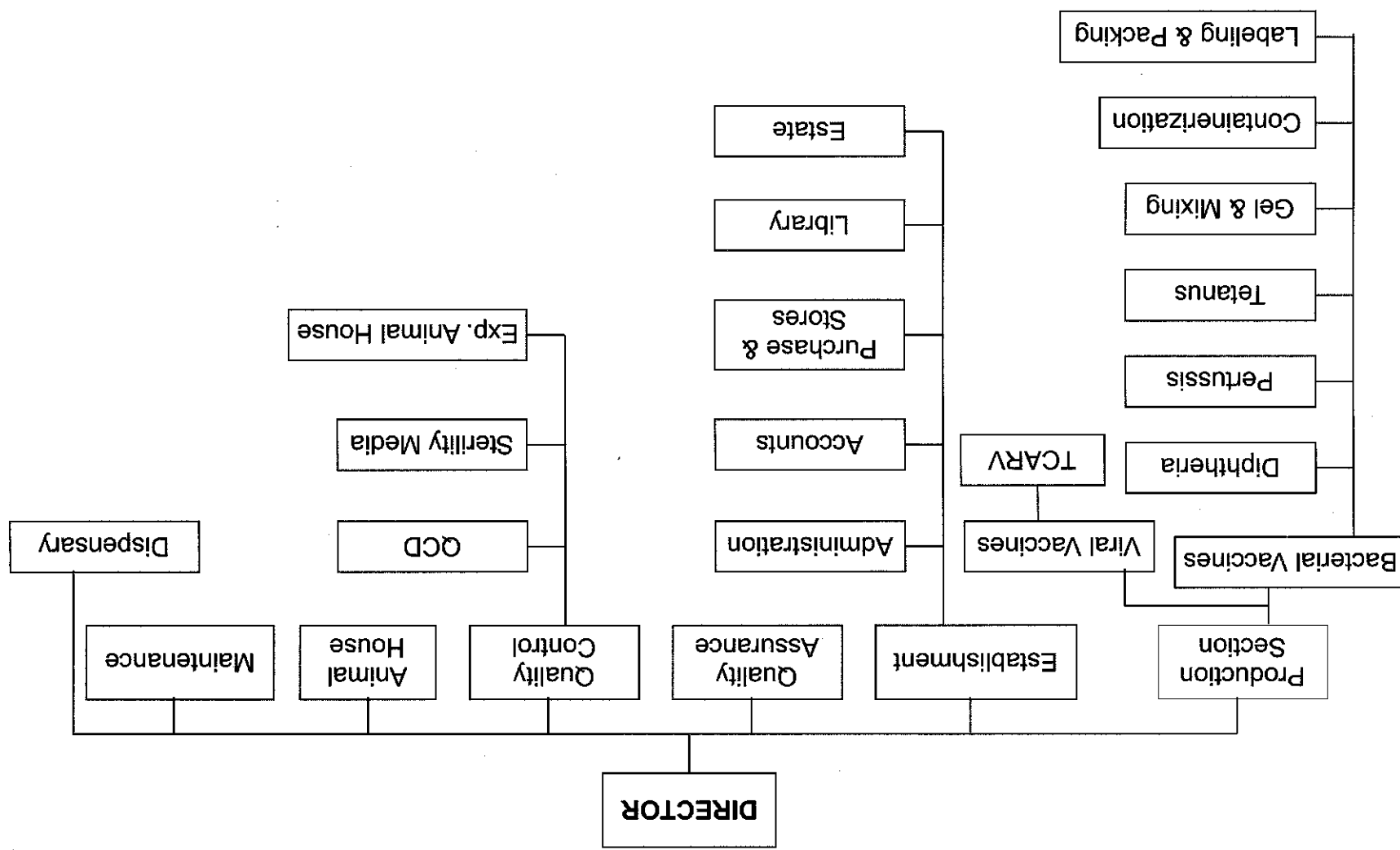
Our Rabies Diagnostic Lab and Anti Rabies Clinic continued to render public health services. Our Rabies Diagnostic Lab has received 160 samples from all over the country, for the estimation of Anti-rabies neutralizing antibodies by RFFIT using Murine Neuroblastoma-2A cells. As done in the previous years, in the reporting year also about 1264 patients received Anti Rabies Vaccines in our Anti Rabies Treatment Centre among them 676 patients received Anti Rabies Serum also.

On the academic front in the reporting year we organized Post-graduate student project of 3 month duration. Around 30 Post Graduate students from different colleges and universities have undertaken the projects as part of their course under the guidance of our officers and staff. We also organized In-plant Training for a period of one week for 234 college students and also one day Industrial visit for 93 batches of students. Besides this 10 scholars are pursuing their research activities as part of the PhD course affiliated to Bharathiar University in different subjects like Microbiology, Biotechnology and Biochemistry. These research activities are being carried out in the recently established R & D laboratories using molecular biological tools.

On the whole in the reporting year we accomplished our plan of activities.

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ORGANOGRAM - PASTEUR INSTITUTE OF INDA



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CONTROLLING OFFICERS

1. Director : Dr. B. Sekar, M.B.B.S., M.D.,
2. Assistant Director : Dr. K.N. Venkataramana, M.B.B.S., D.M.V.,
3. Assistant Director : Dr. B. Sundaran, M.Sc., Ph.D.,
4. Assistant Director : Dr. (Smt) Jeeva Kalai Selvan, M.B.B.S.,
5. Senior Research Officer : Shri C. Palaniappan, M.Sc., D.M.L.T.,
6. Senior Medical Officer : Dr (Smt) Sibani Barman, M.B.B.S.,

RESPONSIBILITIES OF CONTROLLING & OTHER OFFICERS

1. **DIRECTOR** : Chief executive officer of all activities associated with the Institute viz..Administration,Accounts & Finance, Production, QA, QCD, R&D.
2. **DEPUTY DIRECTOR** : All activities associated with the production and supply of TCARV, Animal House, Maintenance section, Purchase, Stores Department, Estate Department and administrative duties assigned by the Director.
3. **ASSISTANT DIRECTOR** : All activities associated with the Quality Assurance Division and administrative duties assigned by the Director.
4. **ASSISTANT DIRECTOR** : Production of Diphtheria, Tetanus, Pertussis, Gel & Mixing Section, Containerization & Inspection and Labelling, Packing & Dispatch section.
5. **SENIOR RESEARCH OFFICER-II** : All activities associated with QCD (QCD, Sterility Media Section, Rabies Diagnosis Lab and Experimental Animal House).
6. **SENIOR MEDICAL OFFICER** : All activities associated with Dispensary.
7. **ADMINISTRATIVE OFFICER** : All activities associated with Administration, Establishment, Security, Estate, Maintenance, Legal and Vehicle movement and also Accounts.

COMMITTEES

1. **DEPARTMENTAL OF PURCHASE COMMITTEE**
 - (a) Dr. B. Sekar, Director - Chairman
 - (b) Dr. K.N. Venkataramana, Assistant Director - Member
 - (c) Dr. B. Sundaran, Assistant Director - Member
 - (d) Dr (Mrs) Jeeva Kalaiselvan, Senior Research Officer - Member
 - (e) Shri C. Palaniappan, Senior Research Officer - Member
 - (f) Shri A. Vairamoorthy, Administrative Officer - Member
 - (g) Shri S. Chandrasekaran, Stores Officer - Member
2. **DEPARTMENTAL OF CONDEMNATION COMMITTEE**
 - (a) Dr. B. Sundaran, Assistant Director
 - (b) Shri C. Palaniappan, Senior Research Officer
 - (c) Shri R. Mohan, Research Officer
 - (d) Shri B. Annamalai, Assistant Research Officer
 - (e) Shri S. Chandrasekaran, Stores Officer

3. LIBRARY COMMITTEE

- (a) Dr. K.N. Venkataramana, Assistant Director - Member Secretary
- (b) Dr. B. Sundaran, Assistant Director - Member
- (c) Dr (Mrs) Jeeva Kalaiselvan, Senior Research Officer - Member
- (d) Shri C. Palaniappan, Senior Research Officer - Member
- (e) Dr. A. Premkumar, Research Officer - Member
- (f) Mrs. Savithri Sundaran, Research Officer - Member
- (g) Dr. Anjan Jyoti Nath, Veterinary Assistant Surgeon - Member
- (h) Mrs. Shanthi Mani, Research Officer - Member
- (i) Shri R. Mohan, Research Officer - Member
- (j) Dr. Samyak Sahu, Medical Officer - Member

4. INTERIM STAFF COUNCIL**OFFICIAL SIDE**

1. Dr. B. Sekar, Director & Chairman, ISC
2. Shri A. Vairamoorthy, Administrative Officer & Secretary
3. Dr. K.N. Venkataramana, Assistant Director & Member
4. Dr. B. Sundaran, Assistant Director & Member
5. Shri C. Palaniappan, Sr. Research Officer & Member
6. Shri S. Chandrasekaran, Stores Officer & Member

STAFF SIDE

	Group	Representative No.
1. Shri N.M. Ramakrishnan	Technical Assistant & Dy. Leader	Rep. of Gr. 01
2. Shri R. Sathiyamoorthy	Lab. Technician & Leader	Rep. of Gr. 02
3. Shri R. Gunasekaran	Lab. Assistant	Rep. of Gr. 03
4. Shri C. Doraiswamy	U.D.C.	Rep. of Gr. 04
5. Shri A. Velmurugan	MTS	Rep. of Gr. 05
6. Shri P. Nandakumar	MTS	Rep. of Gr. 05
7. Shri G. Ravi	MTS	Rep. of Gr. 05
8. Shri R. Yesudoss	Staff Car Driver	Rep. of Gr. 06
9. Mrs B. Jayalakshmi	Lady Staff Representative	Rep. of Gr. 08

5. CHIEF VIGILANCE OFFICER

Dr. B. Sundaran, Assistant Director

6. LIAISON OFFICER FOR SC & ST EMPLOYEES

Dr (Mrs) Jeeva Kalaiselvan, Assistant Director

7. CENTRAL PUBLIC INFORMATION OFFICER AND APPELLATE AUTHORITY UNDER RTI ACT**CENTRAL PUBLIC INFORMATION OFFICER:**

- (a) Dr. K.N. Venkataramana, Assistant Director
- (b) Dr. B. Sundaran, Assistant Director
- (c) Dr (Mrs) Jeeva Kalaiselvan, Assistant Director

CENTRAL ASSISTANT PUBLIC INFORMATION OFFICER

Shri P. Sasikumar, Sr. P.A. to Director

APPELLATE AUTHORITY

Dr. B. Sekar, Director

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OVER VIEW

Pasteur Institute of India, Coonoor is a pioneer institute involved one of the leading Institutions in the production of Antirabies Vaccine and DPT group of Vaccines, It is functioning as an autonomous body under Ministry of Health and Family Welfare, Govt. of India.

PREAMBLE

The Institute started functioning as Pasteur Institute of Southern India, on 6th April 1907 and the Institute took a new birth as the Pasteur Institute of India (registered as a Society under the Societies Registration Act 1860) and started functioning as an autonomous body under the Ministry of Health and Family Welfare, Government of India, New Delhi from the 10th of February, 1977. The affairs of the Institute are managed by a governing body. The Institute is functioning on a no profit no loss basis.

GENESIS


The death of a young English lady Lily Pakenham Walsh, due to hydrophobia in the year 1902 who could not get antirabies treatment in time led to the establishment of Pasteur Institute of Southern India. Mr. Henry Phipps, American Philanthropist donated to Lord Curzon, the then Viceroy of India a sum of Rs.50.00 lakhs for the development of Medical Institutions, out of which, a sum of Rupees one lakh was allocated to start the Pasteur Institute of Southern India at Coonoor.

The cool and equitable climate led to the choice of Coonoor as the most suitable location for the construction of the Institute. Spread over an area of 16 acres of land the Institute is situated on a grassy knoll on the upper reaches of Coonoor town amidst beautiful surroundings with lush greenery, manicured lawns and flower gardens. It has a glorious tradition of single minded dedication to alleviate the suffering of humanity by its contribution to the research and development of vaccines in the country.

SETTING THE PACE IN TECHNOLOGY

Pasteur Institute of India has consistently set the pace in innovating and adapting newer technology to suit Indian conditions and needs. It is this vast experience and expertise which makes it well equipped to meet the challenges of applying advanced technology in vaccine production. Among the major equipments available in the Institute are large bacterial fermentors, zonal centrifuge, industrial freeze drier, several bulk autoclaves, ovens, filling machines, large cold rooms, deep freezers, bioreactors, purified water system, WFI plant, TOC analyzer, column chromatography, oil & moisture free air compressor, Effluent Treatment Plant (ETP) and Sewage Treatment Plant (STP). Full fledged facility is available for Research and Development work which includes HPLC system, ultra centrifuge, ELISA equipment and equipments for molecular biology work.

The Institute is recognized by the Tamilnadu Dr. M.G.R. Medical University, Chennai for M.D degree in Microbiology and by the Bharathiar University for Ph.D in Microbiology, Biotechnology and Biochemistry in the faculty of Science.

 Pasteur Institute of India, Coonoor

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INSTITUTE'S PRODUCT PROFILE

"Laboratories are the Temples of the future.

It is there the man learns to read the works of nature" - Louis Pasteur.

- ❖ Production of Tissue Culture Antirabies Vaccine (Vero Cell Purified)
- ❖ Production of DPT group of vaccines viz., Diphtheria-Pertussis-Tetanus (DPT) Vaccine, Diphtheria-Tetanus (DT) Vaccine and Tetanus Toxoid (TT) Vaccine.


OBJECTIVES

The objectives of the Society are to make available effective means of preventing the occurrence of rabies to spread the knowledge of such means among the public and to undertake research work on rabies, influenza, enteroviruses or any other diseases and for the following purpose.

- ❖ To prepare such other vaccines as may be in the National interest.
- ❖ To develop the Institute into an advanced service, post-graduate training and research center.
- ❖ To co-operate with International and National agencies engaged in biomedical research and training and arrange for inter-change of personnel, material and data.

IMPORTANT MILESTONES OF THE INSTITUTES

- > 1907 Manufacture of Neural Tissue Antirabies Vaccine.
- > 1957 The isolation of Asian Flu Virus during the pandemic and development of Influenza vaccine against the same virus.
- > 1970 The Development of BPL-inactivated Rabies Vaccine for the first time in India which made the treatment easier and cheaper with less dose and less injections with a vaccine of increased potency.
- > 1970 Research, Development, Production and Supply of Trivalent(Sabin) Oral Polio Vaccine for the first time in India
- > 1982 Release of DPT group of vaccines for the National Programme of Immunization.
- > 1988 Release of Tissue Culture Anti Rabies Vaccine for Canine Prophylaxis
- > 2001 Development and release of Vero Cell Derived Purified Rabies Vaccine for human use at an affordable price to common man for the first time in India by Government controlled Institutions.
- > 2003 This is the first Government sector vaccine Institute awarded with ISO 9001-2000 certificate by BVQI, UK in Quality Management System.
- > 2006 Renewal of ISO 9001:2000 certificate for further period of 3 years by BVQI, UK for QMS

 Pasteur Institute of India, Coonoor

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FUTURE PLAN

- Creation of cGMP facilities for DPT group of vaccines.
- Creation of cGMP facilities for Tissue Culture Antirabies Vaccine & other Viral Vaccines
- Research and Development of newer cost effective vaccines like Pentavalent vaccine

INTERNATIONAL ACCREDITATION

This Institute has been accredited with International Organisation for Standardization (ISO) Certification 9001-2000 for its adopting Quality Management System during the year 2003-2004. This is the first Institute in the Public Sector which has been accredited with ISO 9001-2000 in the vaccine manufacture by International accrediting organization namely Bureau Veritas Quality International (BVQI), London. The certificate was valid upto 22.02.2009. The ISO standards are complementary in line with Good Manufacturing Practices (GMP) norms. The Certificate is issued only after conducting a series of audits to check whether all the standards of ISO are in compliance.

PRESENT ACTIVITIES

- Establishment of cGMP facility for manufacturing DPT group of vaccines.
- Rabies Diagnostic Lab and treatment center to cater the need of the general public.
- Academic programmes like Ph. D. Microbiology, Biochemistry and Biotechnology (Part time & Full time) affiliated to Bharathiar University, Coimbatore and M.D (Microbiology) affiliated to Tamilnadu Dr. M. G. R. Medical University, Chennai.
- Breeding of Mice and Guinea pigs for Experimental purpose like Quality Control of DPT group and TCAR vaccines.

INSTITUTE'S QUALITY POLICY

"We are committed to produce Safe, Potent and Cost effective vaccines with continual improvements in our Quality system."

DETAILS OF GRANT-IN-AID RECEIVED FROM THE MINISTRY OF HEALTH AND FAMILY WELFARE, NEW DELHI AND THE EXPENDITURE INCURRED, ETC., DURING 2015-16

The Ministry of Health and Family Welfare, New Delhi has released a total sum of ₹ 36.00 Crores to this Institute during the financial year 2015-16 vide the under mentioned Sanction Orders:

Sl. No.	Sanction letter No. and Date	Amount (in Rs.)	Head
1.	V.11011/11/2015-VI/1 dated 06.08.2015	5,00,00,000	General
2.	V.11011/11/2015-VI/2 dated 06.08.2015	7,00,00,000	Salaries
3.	V.11011/11/2015-VI/3 dated 06.08.2015	10,00,00,000	Capital
4.	V.11011/11/2015-VI/4 dated 23.12.2015	2,00,00,000	General
5.	V.11011/11/2015-VI/5 dated 23.12.2015	2,00,00,000	Salaries
6.	V.11011/11/2015-VI/6 dated 23.12.2015	10,00,00,000	Capital
	TOTAL	36,00,00,000	
	Unspent/Opening Balance 2015-16	29,15,05,025	
	TOTAL	65,15,05,025	
	Expenditure 2015-2016	50,33,16,743	

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ABSTRACT

Sl. No.	Head of Account	Grant-in-Aid received 2015-16	Expenditure made during 2015-16
1.	GIA - General	700.00	14,07,43,937
2.	GIA - Salaries	900.00	10,21,24,501
3.	GIA - Capital	2000.00	26,04,48,305
	TOTAL	3600.00	50,33,16,743

Sl. No.	Particulars	Amount in Rupees
1.	Opening Balance 2015-16	29,15,05,025
2.	Grant in received 2015-16	36,00,00,000
3.	Interest received 2015-16	1,42,72,847
	Total	66,57,77,872
	Less Expenditure 2015-16	50,33,16,743
	Closing Balance as on 31.03.16	16,24,61,129

ACTIVITIES UNDERTAKEN IN RESPECT OF ESTABLISHMENT OF GREEN FIELD MANUFACTURING GMP FACILITY FOR PRODUCTION OF DPT GROUP OF VACCINE AT PIIC

- The Govt. of India proposed to create Green Field GMP facility for manufacturing DPT group of vaccines at PIIC. In this regard, HLL Lifecare Ltd., Trivandrum has been identified as Project Consultant. EFC has recommended for a total estimated non-recurring expenditure of ₹ 137.02 crores plus the Project Management Consultancy Fee for HLL.
- In Nilgiris, the height of new building is restricted to 7 mts. and any proposal above 7 mts. requires approval of Architectural & Aesthetics Aspects (AAA) Committee and Hill Area Conservation Authority (HACA) committee. Accordingly, the layout has been submitted to the local municipal authorities for recommendation of the AAA/HACA committees. AAA Committee recommended and referred the proposal to HACA committee and the HACA has also approved in principle and the proposal has been forwarded to the Municipal Administration and Water Supply Department (MAWS) for final Orders. The MAWS have issued order relaxing the height



restriction on 1-3-2013 and the final order is received during May, 2013 from the Local Municipal Authorities, Coonoor.

- Civil work for the new GMP project was initiated in the month of June, 2013.
- After that Equipment Validation and Process validation will be undertaken. Then production of vaccine from the new facility will be initiated for the certification of initial 3 consecutive batches by CDL.
- The proposed annual supply from the new facility will be: DPT- 60 Mid; TT 55 Mid; DT- 15Mid (Total- 130 Mid).

PROGRESS OF CIVIL CONSTRUCTION

- ★ Civil work for the new GMP project was initiated in the month of June, 2013.
- ★ As on date 100% of the basic infrastructure work required for DP block has been completed in the form of constructing retaining wall and mass earth work excavation.
- ★ 99.5% of the work for Diphtheria and Pertussis block has been completed in the form of all structural works, Joinery works & finishing works except fixing of sanitary wares till Nov.-15.
- ★ 95% of the work for Formulation block has been completed in the form of footing, Columns, plinth beams, retaining wall, grade slab & floor Slab concreting works, all first floor columns, Lintel beams, Roof beam, IPS flooring & Roof sheeting works are completed.
- ★ 99.5% of the work for Sterility and Microbiology Lab has been completed in the form of all structural works, Joinery works & finishing works except fixing of sanitary wares.
- ★ 99.5% of the work for the Animal Experiment Block has been completed in the form of all structural works, Joinery works & finishing works except fixing of sanitary wares.
- ★ 98% of the work for the Utility Block has been completed in the form of all structural works, Joinery works & finishing works except external painting and Ground floor IPS flooring.
- ★ 80% of Tetanus block completed in the form of finishing 23 out of 23 footings, Retaining walls, suspended grade slab, 80% GF block work, 100% of GF slab, 80% Roof gutter beam, 80% truss & purlin erection, 60% external plastering etc.
- ★ 96% of Animal breeding modification works completed in the form of demolition of all partition walls (GF & FF), kota stone flooring, internal painting & Toilet tile works.
- ★ Tender value for civil construction is around Rs.24.67 crores, out of which as on 31.03.2016, civil work amounting to Rs.17.60 crores worth has been completed which is 71.34% of the total civil project cost.

OTHER GMP RELATED ACTIVITIES

- Meeting on URS of Biowaste inactivation system (Collection tank 2 Nos., and Kill Tank 2 Nos.) was held on 13.04.2015 at PII, Coonoor.
- 3rd Local Monitoring Committee meeting held on 18.04.2015 to evaluate the progress of the project for establishing the cGMP facility for manufacturing DPT vaccines on quarterly basis.
- Combined meeting on approval of Design Qualification documents for water generation and distribution systems was held at PII, Coonoor on 11.05.2015 and 12.05.2015.
- Kick off meeting for the supply, installation, commissioning and validation of Microfiltration system was held on 05.05.2015.

- Kick off meeting for the supply, installation, commissioning and validation of Ultrafiltration_SFT_SFS_FIT was held on 06.05.2015 at HLL, Chennai.
- Pre-bid meeting for Diesel Generator was held at HLL Biotech, Chennai on 22.05.2015.
- Extension of approval for the construction of cGMP compliance production of DPT group of vaccines at PII, Coonoor was received from Coonoor Municipality for one year i.e. from 30.04.2015 to 29.04.2016 vide their letter No.47/2013/F1 dated 08.05.2015.
- The meeting on sterile filtration system along with the vendors and Project Management Consultant held on 15.07.2015.
- The meeting on DQ approval on seed fermentor along with the vendors and Project Management Consultant on 15.07.2015.
- Pre-bid meeting for "Supply, Installation, Commissioning and Validation for Fabrication Equipment Package" held on 19.08.2015 at HBL, Conference Hall, Chennai.
- The Fourth Local Monitoring Committee meeting to assess and evaluate the progress of the work for establishing the cGMP facility for manufacturing DPT vaccines at PII, Coonoor on 21.08.2015. Dr. Tarsem Chand, Joint Secretary, MoH&FW, Govt. of India also attended the meeting.
- Pre-bid meeting on Waste Water Treatment Plant held on 25.08.2015 at HBL Conference Hall, Chennai.
- Teleconference of vial filling line technical discussion/clarification held on 26.10.2015.
- Officers from PII, Coonoor were deputed to Mock Modular panel inspection on 28th & 29th October, 2015 at M/s. GMP Technical Solution, Baddi, Himachal Pradesh.
- Officers from PII, Coonoor were deputed to factory for Factory Acceptance Test (FAT) programmed scheduled for the first lot of sterilization equipment package from 7th to 10th December, 2015.
- The Fifth Local Monitoring Committee meeting to assess and evaluate the progress of the work for establishing the cGMP facility for manufacturing DPT vaccines at PII, Coonoor on 13.01.2016.
- Officers from PII, Coonoor were deputed to vendor factory for FAT programme scheduled for the microfiltration package from 9th to 14th December, 2015.
- Officers from PII, Coonoor were deputed to vendor factory for FAT programme scheduled for the Ultra filtration and sterile filtration from 21st to 24th December, 2015.
- Officers from PII, Coonoor were deputed to M/s. HBL, Chennai for attending pre-bid meetings pertaining to various equipment packages from 4th to 7th January, 2016.
- Officers from PII, Coonoor were deputed to vendor factory for FAT programme scheduled for the second lot of sterilization equipment package from 27th January, 2016 to 2nd February, 2016.
- Officers from PII, Coonoor were deputed to vendor factory for FAT programme scheduled for the seed fermentor package from 27th to 29th January, 2016.
- Officers from PII, Coonoor were deputed to vendor factory FAT programme scheduled for the third lot of sterilization equipment package from 15.02.2016 to 19.02.2016.
- Officers and staff from PII, Coonoor were deputed to Chennai for pre-bid meeting for lab equipment package from 07.03.2016 to 10.03.2016.
- Officers and staff from PII, Coonoor were deputed to vendor factory for attending FAT programme for the sterilization equipment package lot-4 from 18.03.2016 to 25.03.2016.

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- Officers and staff from PII, Coonoor were deputed to vendor factory for FAT programme for seed fermentor package from 23.03.2016 to 24.03.2016.
- Officers and staff from PII, Coonoor were deputed to participate kick-off meeting for fabrication equipment package (schedule 1 & 2) at HLL, Chennai from 29.03.2016 to 30.03.2016.
- Tender value for civil construction is around ₹ 24.67 crore, out of which as on date, civil works amounting to ₹ 17.60 crores worth has been completed which is 71.34% of the total project cost.

A. BACTERIAL VACCINE DIVISION

The bacterial vaccine division comprises of three basic functional units, which has been producing bulks for the production of DTP group of vaccines.

- ★ Diphtheria
- ★ Tetanus
- ★ Pertussis

The DTP vaccine production units have adopted modern fermentor technology to produce the toxin (Tetanus and Diphtheria) and bacterial mass (*B. pertussis*), which are the components of DTP group of vaccines. **PIIC is the first Institute in the country both in public and private sectors to adopt and install the PROSTAK system for clarification of toxin and concentration of formal treated toxin prior to ammonium sulfate fractionation step and concentration of Pertussis organisms.** The crude toxoid of both tetanus and diphtheria are purified as per GMP norms adopting latest technology of Tangential flow principles using appropriate membrane and cassettes (Micro filtration & ultra filtration). Further the Membrane filters successfully replaced the old fiber shedding EKS filters in the final polishing filtration process.

DIPHThERIA

This section is adopting fermentation technology for the cultivation of Diphtheria organisms. The capacity of the fermentor is 400 lts. The crude toxoid of diphtheria is purified by adopting latest technology of Tangential flow principles using appropriate membrane and cassettes (Micro filtration & ultra filtration). Membrane filters were successfully replaced the old fiber shedding EKS filters.

TETANUS

The tetanus section is adopting both pot culture and fermentor culture for the cultivation of Tetanus organisms. For the clarification of the toxin prostak modules with 0.22 µm membrane filters have been standardized and used. Toxoid concentration was done by Pellicon Cassette system.

PERTUSSIS

This division is adopting fermentor technology for the bulk production. The total capacity of the fermentor is 400 lts. The concentration of bacterial mass involves the use of Tangential Flow Filtration system utilizing 0.45µm open channel modules (micro porous membranes) fitted to Prostak system. Vaccine production temporarily suspended, since the establishment of GMP facility.

B. VIRAL VACCINE DIVISION

The Institute has the facility to produce the Vero cell derived purified antirabies vaccine.

VERO CELL DERIVED PURIFIED ANTI RABIES VACCINE

Tissue culture Anti Rabies Vaccine project was started in 1981 funded by WHO/UNDP. In 1982 PV-3462 strain of rabies was adopted in BHK and Vero cell lines. In 1983 PV-11 strain was adopted in BHK-21 cell lines. From 1984 onwards-regular batches using Vero cell based PV-11 strain of rabies virus have been produced.

Further the clinical trials have been carried out on 6 batches. During 2001-2002 CDL, Kasauli declared and certified that the vaccine produced by this Institute is of standard quality.

During the reporting period standardization of purification by affinity chromatography utilizing cellulose sulphate matrix and lyophilisation were carried out.

QUALITY CONTROL DEPARTMENT

The Quality Control Department comprised of the following divisions

1. Quality Control Department
2. Sterility Media Section
3. Rabies Diagnosis Laboratory
4. Experimental Animal House

The following processes were carried out in Quality Control Division.

- a) Quality Control Tests on Bacterial Vaccines (DPT group of vaccines) and Tissue Culture Anti Rabies Vaccine
- b) Sterility media preparation
- c) Rabies Diagnostic Tests
- d) In vivo tests and Regular Maintenance of Experimental Animal House

a. QUALITY CONTROL TESTS

During this period, received and processed 2 stability samples of BPDT, 2 stability samples of BPDT, 2 stability samples of B.P. pool, 4 individual strains of B. Pertussis samples, 1 R & D sample of B.P. pool and 8 final bulk samples of R&D batches. Also carried out one batch of SCDM and 63 TCARV samples.

b. STERILITY MEDIA PREPARATION DIVISION

During this period the Sterility Media section was engaged in the preparation of sterility media to rule out the microbial contamination on various samples and also for the checking of microbes in the classified sterile area in vaccine production. The following table shows the figures of various bacteriological media prepared and utilized.

Go strive to seek to find and not to yield

Go strive to seek to find and not to yield

Nutrient Agar	19.25 Litres	Prepared in Petri dishes and used for various testings
Sabourauds Agar	13.75 Litres	Prepared in Petri dishes and used for various testings
Alternate Thioglycollate broth fluid medium	99.00 Litres	Used in the sterility testings as per I.P.
Soyabean Casein Digest broth	100.00 Litres	Used in the sterility testings as per I.P.
Fluid Thioglycollate Broth	1.00 Litres	Used in the sterility testing as per I.P.

c. RABIES DIAGNOSTIC LAB

160 sera samples both from Human and Domestic animals were subjected to Rapid Fluorescent Focus Inhibition Test (RFFIT) for the detection and quantification of Rabies Neutralizing Antibodies using Murine Neuroblastoma-2A cells and 96 well flat bottom Micro titre plates. This includes the samples received from our Dispensary from the patients reporting for consultation and to assess the post vaccination sero conversion for the protection against rabies infection.

d. EXPERIMENTAL ANIMAL HOUSE

Production Labs and Quality Control Department conducted in vivo tests in the experimental animal house. These experimental animals were maintained in the Experimental animal house during the test period as per test procedure.

LABORATORY ANIMAL DIVISION

Animal	Weaned	Supplied
Mice	11549	6670
Guinea pigs	683	194

RABIES TREATMENT CENTRE & DISPENSARY

Rabies treatment center established in 1907 for treatment of dog bite cases is continuously functioning for the last 100 years or more effectively and efficiently. For the benefit of patients coming from far of places this hospital is working round the clock. During day time the dispensary is also providing basic health care facilities to employees of Pasteur Institute of India and their dependents. Rabies treatment center is also engaged in collecting epidemiological data of animal bite cases and also efficacy of antirabies vaccines. In order to minimize the cost and quantity of tissue culture vaccine intra dermal administration is practiced.

This Institute offers technical support to department of Public Health, Govt. of Tamilnadu in declaring Nilgiris District as Rabies Free.

DISPENSARY PERFORMANCE STATISTICS

Staff and family : 6293
 Diabetes patients : 60
 Hypertensive patients : 75
 Asthma patients: 5

TOTAL PATIENTS SEEN AND TREATED IN ANTI RABIES DISPENSARY

Sl. No.	Details	Nilgiris	Other than Nilgiris	Total Cases
1.	Post - Exposure	470	771	1241
2.	Re - Exposure	18	4	22
3.	Advise Cases	1	-	1
4.				1264
5.	Class - I	6	43	49
6.	Class - II	100	31	131
7.	Cass III	383	701	1084
8.				1264
9.	Annual Booster	9	1	10
10.	Pre - Exposure	7	2	09
11.				19
12.	Total (4+11)			1283
13.	Adult Male	224	418	642
14.	Adult Female	143	192	335
15.	Child Male	98	112	210
16.	Child Female	40	56	96
17.				1283
18.	Hydrophobia	Nil	3	3

QUALITY ASSURANCE

"Quality Assurance" is a wide ranging concept covering all matters that individually or collectively influence the quality of a product. It is the totality of the arrangements made with the object of ensuring that pharmaceutical products are of the quality required for their intended use. Quality Assurance therefore incorporated GMP and other factors.

The following activities were carried out in Quality Assurance Section.

- ❖ Regular monitoring of seed stock in cold storage for bacterial vaccine (DPT group of vaccine) and issue to the production laboratories based on the requirement.
- ❖ Maintaining the Standard Operating Procedures (SOPs) for all sections of our organization and made amendments based on the request.
- ❖ Batch Processing Records (BPRs) were issued based on the request from the different section and reviewed the same after the completion of the work.

No strive to seek to find and not to yield

No strive to seek to find and not to yield

- ❖ Revisions made in organogram and responsibility for all sections as and when warranted.
- ❖ Environmental monitoring (viable & non viable particle count) at DPT filling unit and other critical area undertaken.
- ❖ Calibration of temperature and pressure gauges available in different section was organized.
- ❖ Active role being played in establishment of cGMP facility for the production of DPT group of vaccines.
- ❖ To actively participate in key meetings such as URS finalization, DQ review and discussion, pre bid, kick off, FAT protocol review, etc., for various equipment packages.

RESEARCH & DEVELOPMENT LABRATORY

Research and Development is the source of the discoveries that will shape the future of our organization by providing continuous improvement for existing products and executing against new product.

R & D Laboratory is equipped with the following facilities:

- ◆ High Performance Liquid Chromatography (HPLC) for the analysis of proteins.
- ◆ Conventional PCR, Gradient PCR and Real Time PCR.
- ◆ Bio-safety cabinet to handle the pathogens.
- ◆ Lyophilizer facility.
- ◆ Bio-Reactors for Vero cell cultivation and R&D activities in rabies vaccine production technology.
- ◆ Mini Pellicon system for the concentration and purification of biological products.
- ◆ DNA and protein analysis by electrophoresis.
- ◆ During the reporting period, the following activities were carried out:
- ◆ Research work carried out Ph.D. scholars in the field *Staphylococcus aureus*, *Helicobacter pylori*, *Haemophilus influenzae*, *Corynebacterium diphtheriae*, *Clostridium tetani* and Rabies virus.
- ◆ Standardization of in-house serological assays for rabies virus.
- ◆ Microcarrier culture based rabies vaccine research work is in progress.
- ◆ Research work done by the M.Sc., project student form different sections.

LIBRARY

The Institute has a well stocked library with 4258 books and 12737 bound volumes, 7 International journals, 9 Indian Journals and WHO publication (Periodicals and Selected Series subscription).

List of Books added to library during the reporting period:

1. Annual Review of Biochemistry
2. Annual review of Immunology
3. Annual review of Microbiology
4. Biotechnology Annual Reviews

List of Foreign Journals Purchased :

1. Biological
2. Journal of American Medical Association
3. Lancet

4. New England Journal of Medicine
5. New Scientist
6. Vaccines
7. WHO publications (Global)
8. Human Vaccines and Immunotherapeutics (formerly Human Vaccines)

List of Indian Journals Purchased :

1. MIMS
2. Antiseptic
3. Chemical Product Finder
4. CIMS
5. Herald of Health
6. Indian Journal of Biotechnology
7. Indian Practitioner
8. Pharma Review
9. Tamil Compute
10. India Today Hindi
11. Indian Veterinary Journal
12. Pharmaceuticals and Biologicals Package
13. Sarita

Complimentary

1. Dream 2047
2. EPI Newsletter
3. Life Science Industrial News
4. Nutrition News

Academic Activities :

In addition to the usual library activities the industrial visit for students from different colleges and universities were entertained to the students to enrich their scientific knowledge and to create awareness in vaccine production and immunization procedures etc. From April 2014 to March 2015, 93 batches of students have visited the Institute.

During the period April 2014 to March 2015, 30 students carried out course project, 234 students undergone in plant training.

The library is having internet connection to utilize the E-Journal service to the maximum.

DETAILS OF THE PROMOTION MADE DURING APRIL 2015 TO MARCH 2016

Sl. No.	Name	Designation	Promoted to	Date
1.	Shri T.G. Irudhayaraj	Supervisor	Foreman	01.05.2015
2.	Shri V. Ravi	Maintenance Technician	Supervisor	01.05.2015
3.	Shri C.Alexander Joseph	Maintenance Assistant	Maintenance Technician	01.05.2015
4.	Shri T. Sigamani	Laboratory Technician	Technical Assistant	01.05.2015
5.	Shri D. Jaganathan	Laboratory Assistant	Laboratory Technician	01.05.2015
6.	Shri S. Kanagasabapathy	Multi Tasking Staff	Laboratory Assistant	01.05.2015



Inspection of the Institutional Animal Ethics Committee on 13.05.2015



Sl. No.	Name	Designation	Promoted to	Date
7.	Shri K. Murthy	Sr. Technical Assistant	Asst. Technical Officer	01.06.2015
8.	Smt. Victoria Jayaraj	Technical Assistant	Sr. Technical Assistant	01.06.2015
9.	Shri A. Sathar	Laboratory Technician	Technical Assistant	01.06.2015
10.	Shri B. Lakshmanan	Laboratory Assistant	Laboratory Technician	01.06.2015
11.	Shri S. Devanbu	Multi Tasking Staff	Laboratory Assistant	01.06.2015
12.	Shri M. Murugan	Multi Tasking Staff	Laboratory Assistant	01.06.2015
13.	Shri M. Subramani	Technical Assistant	Sr. Technical Assistant	01.09.2015
14.	Shri P. Shanmugam	Laboratory Technician	Technical Assistant	01.09.2015
15.	Shri S. Peter	Laboratory Assistant	Laboratory Technician	01.09.2015
16.	Shri S. Chandrasekaran	Multi Tasking Staff	Laboratory Assistant	01.09.2015
17.	Shri K. Krishnan	Laboratory Assistant	Laboratory Technician	01.09.2015
18.	Shri B. Sivalingam	Multi Tasking Staff	Laboratory Assistant	01.09.2015
19.	Shri K. Elancheran	Multi Tasking Staff	Laboratory Assistant	01.09.2015
20.	Dr (Mrs) Jeeva Kalaiselvan	Sr. Research Officer	Assistant Director	23.09.2015
21.	Shri C. Subramanian	Maintenance Technician	Supervisor	01.11.2015

DETAILS OF THE STAFF SUPERANNUATED/OPTED V.R.S.

DURING THE PERIOD FROM APRIL 2015 TO MARCH 2016

Sl. No.	Name	Designation	Date
1.	Shri R. Mohan	Foreman	30.04.2015
2.	Shri M. Dayalan	Technical Assistant	30.04.2015
3.	Shri M. Gopal	Assistant Technical Officer	31.05.2015
4.	Dr. K.N. Venkataramana	Assistant Director	31.05.2015
5.	Shri A. Raghavan	Laboratory Assistant	30.06.2015
6.	Shri R. Iyyavoo	Laboratory Assistant	31.08.2015
7.	Smt. Rubasundari Natarajan	Laboratory Technician	31.08.2015
8.	Shri P. Radhakrishnan	Senior Technical Assistant	31.08.2015
9.	Shri J. Kamaludeen	Maintenance Officer	31.10.2015
10.	Shri S. Basavaraj	Supervisor	31.10.2015
11.	Dr. Anjan Jyoti Nath	Veterinary Assistant Surgeon	15.12.2015
12.	Shri S. Krishnamurthy	Truck/Van Driver	31.12.2015
13.	Shri M. Pasupathy	Laboratory Technician	31.01.2016
14.	Smt. Meera Chinnappan	Laboratory Technician	31.01.2016
15.	Shri V. Ravichandran	Heavy Vehicle Driver	31.01.2016
16.	Dr (Mrs) Jeeva Kalaiselvan	Assistant Director	31.03.2016

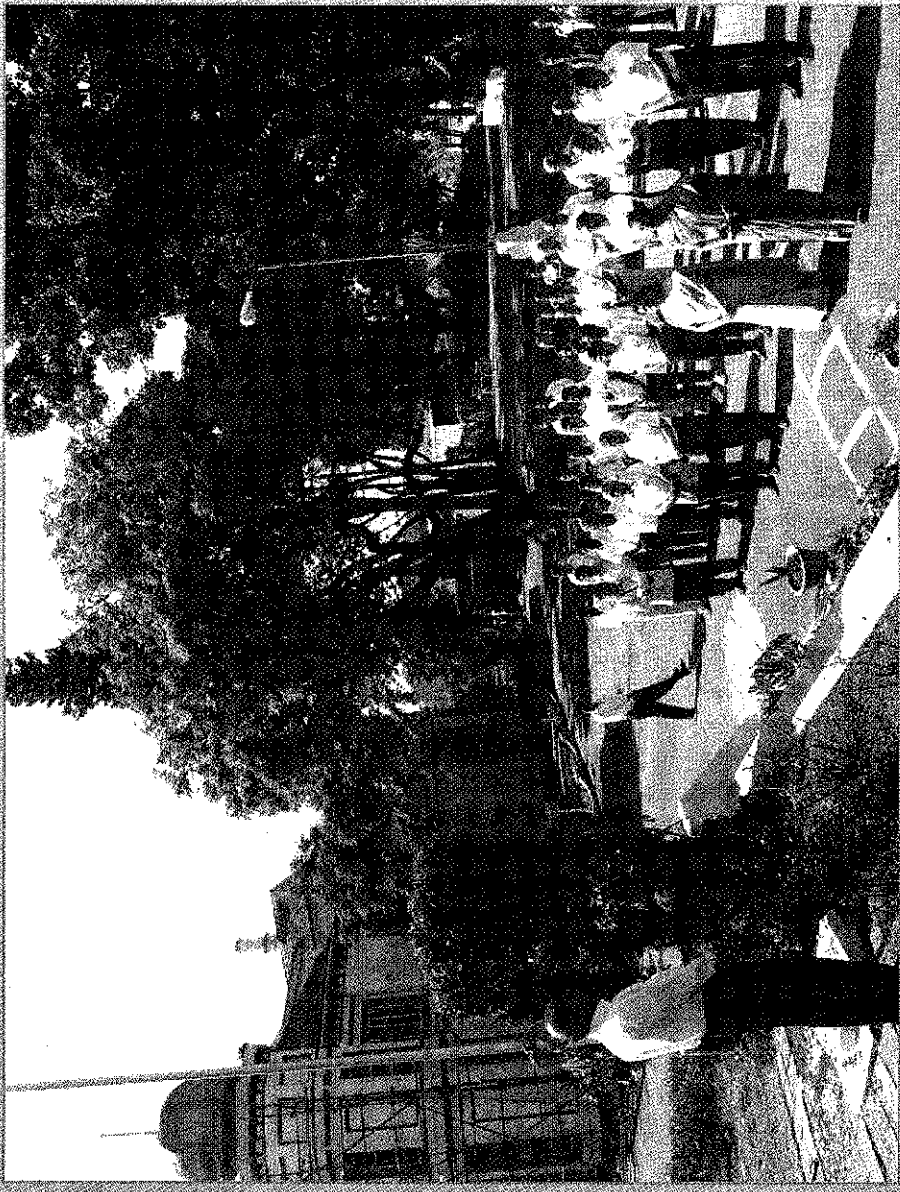
DETAILS OF THE STAFF DECEASED DURING THE PERIOD FROM

APRIL 2015 TO MARCH 2016

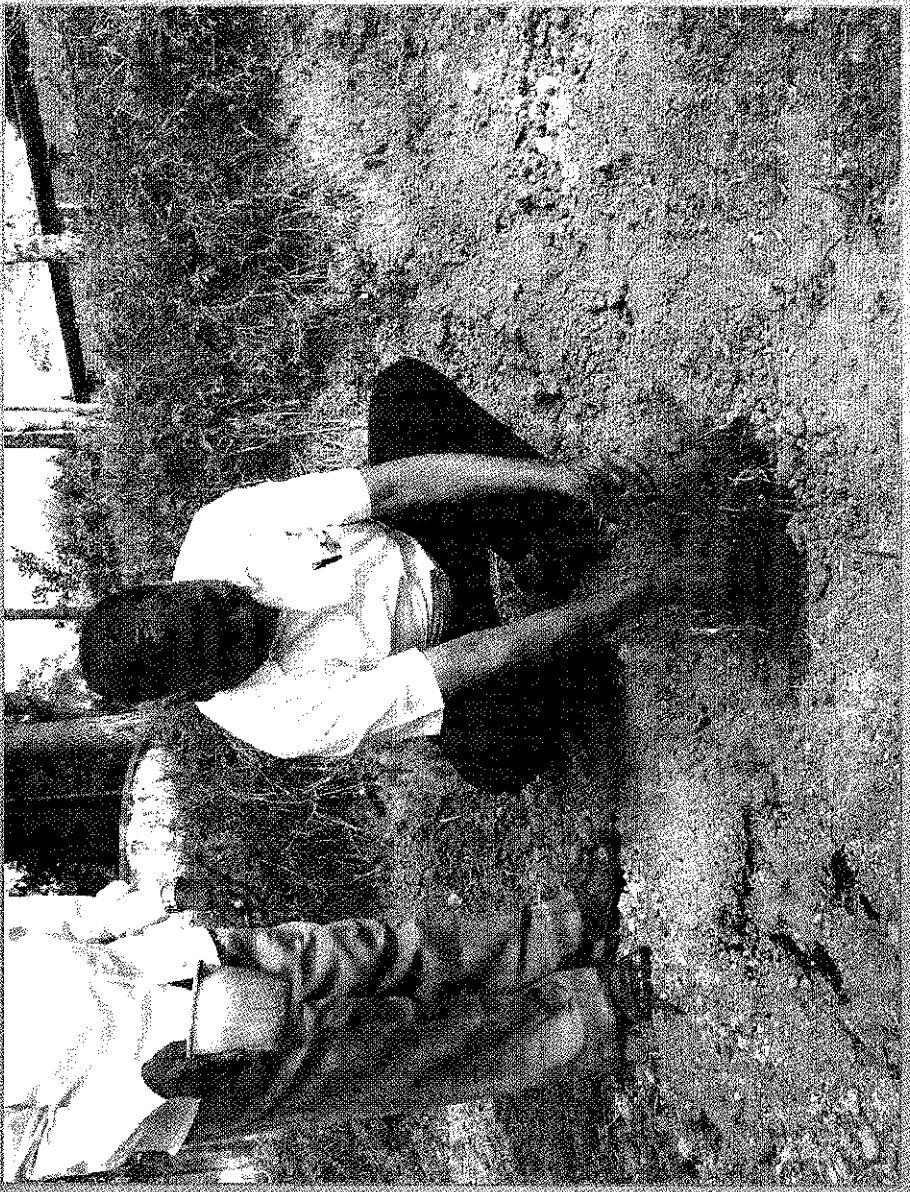
Sl. No.	Name	Designation	Date
1.	Shri P. Subramani	Laboratory Technician	16.05.2015
2.	Shri K. Rajendran	Laboratory Technician	01.01.2016
3.	Shri G. Joghee	Laboratory Technician	23.01.2016
4.	Shri B.J. Basavaraj	Technical Assistant	17.02.2016

Photo Gallery

Independence Day - 2015



Tree planting on Independence Day - 2015



Observation of International Yoga Day on 21.06.2015

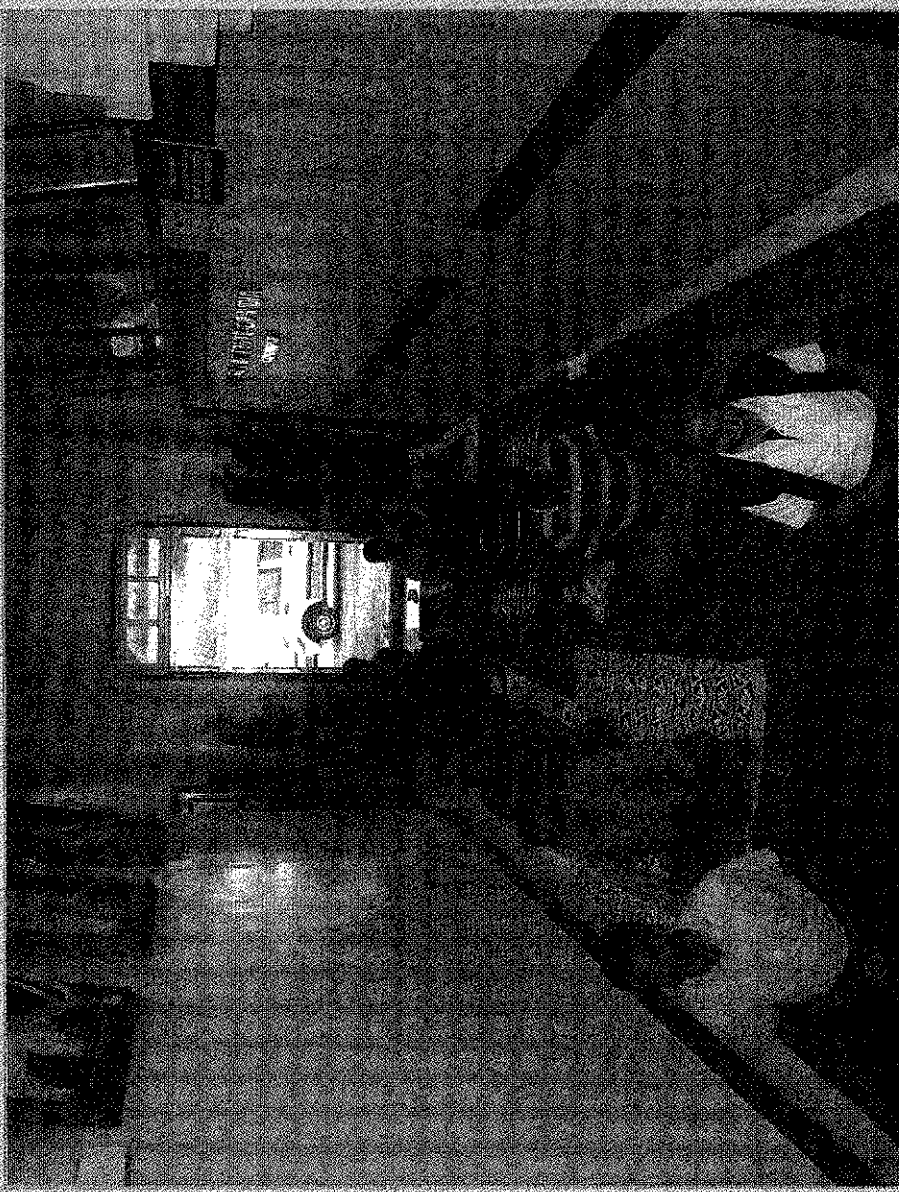
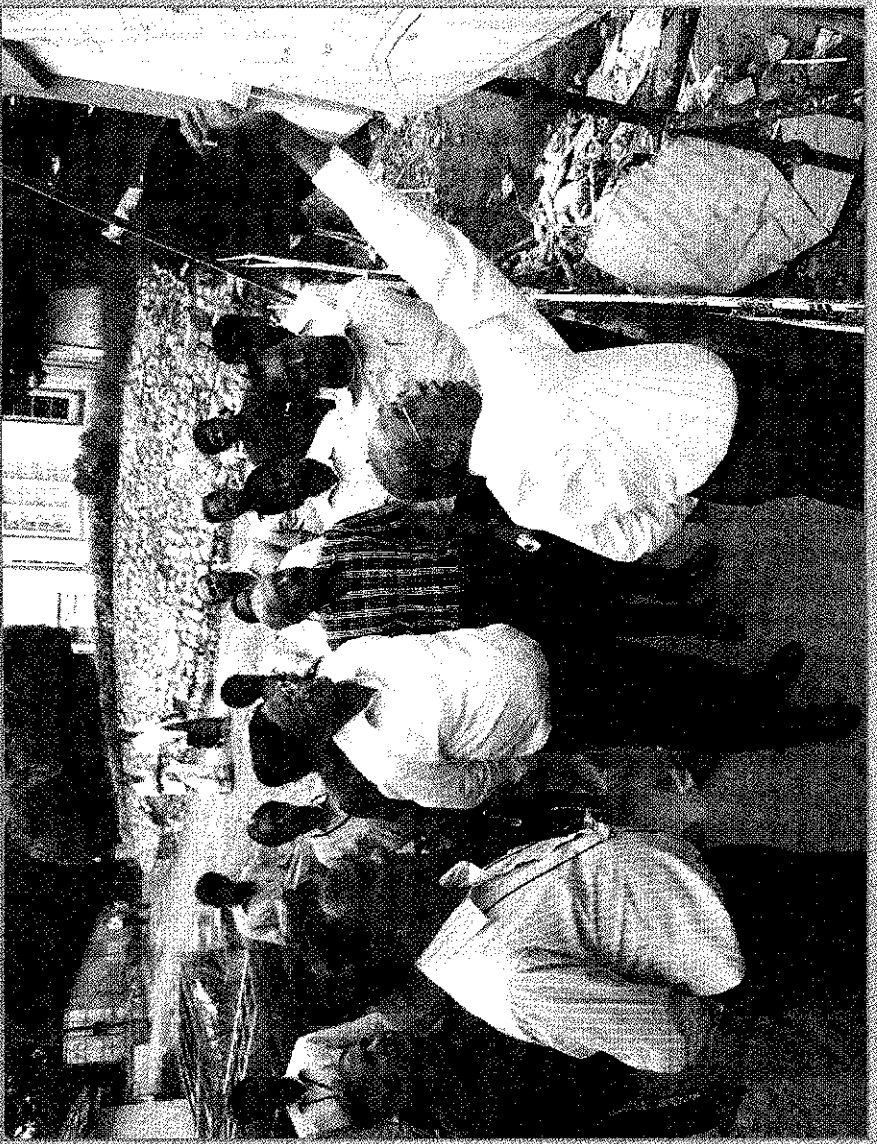


Photo Gallery

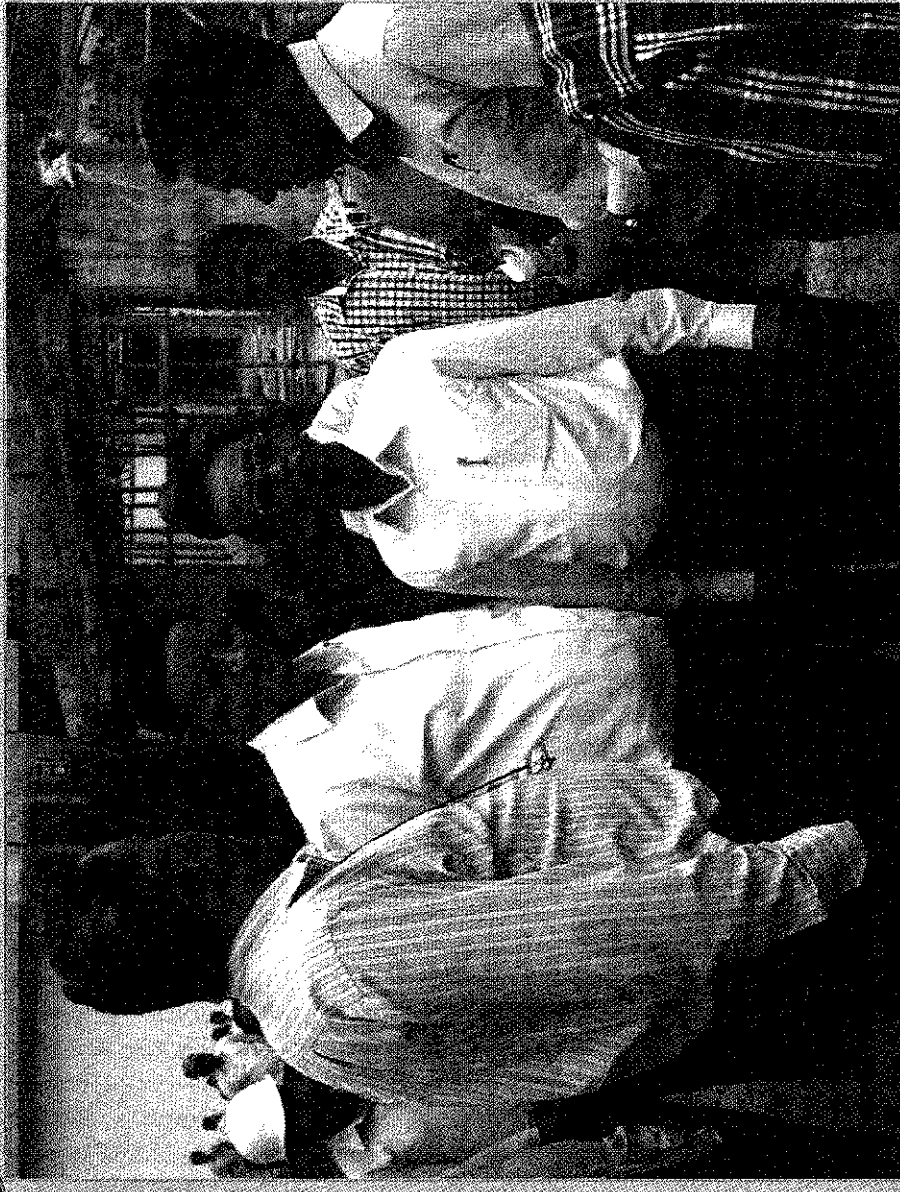
Tree planting on Independence Day - 2015



4th Local Monitoring Committee meeting to monitor progress of GMP Project visit of Dr. Tarsen Chand J.S. to G.O.I. on 21.08.2015



4th Local Monitoring Committee meeting to monitor progress of GMP Project visit of Dr. Tarsen Chand J.S. to G.O.I. on 21.08.2015



World Rabies Day - Awareness Rally inaugurated by Dr. P.G. Bhanumathi, Dy.Dir., Health Services, Nilgiris on 28.09.15

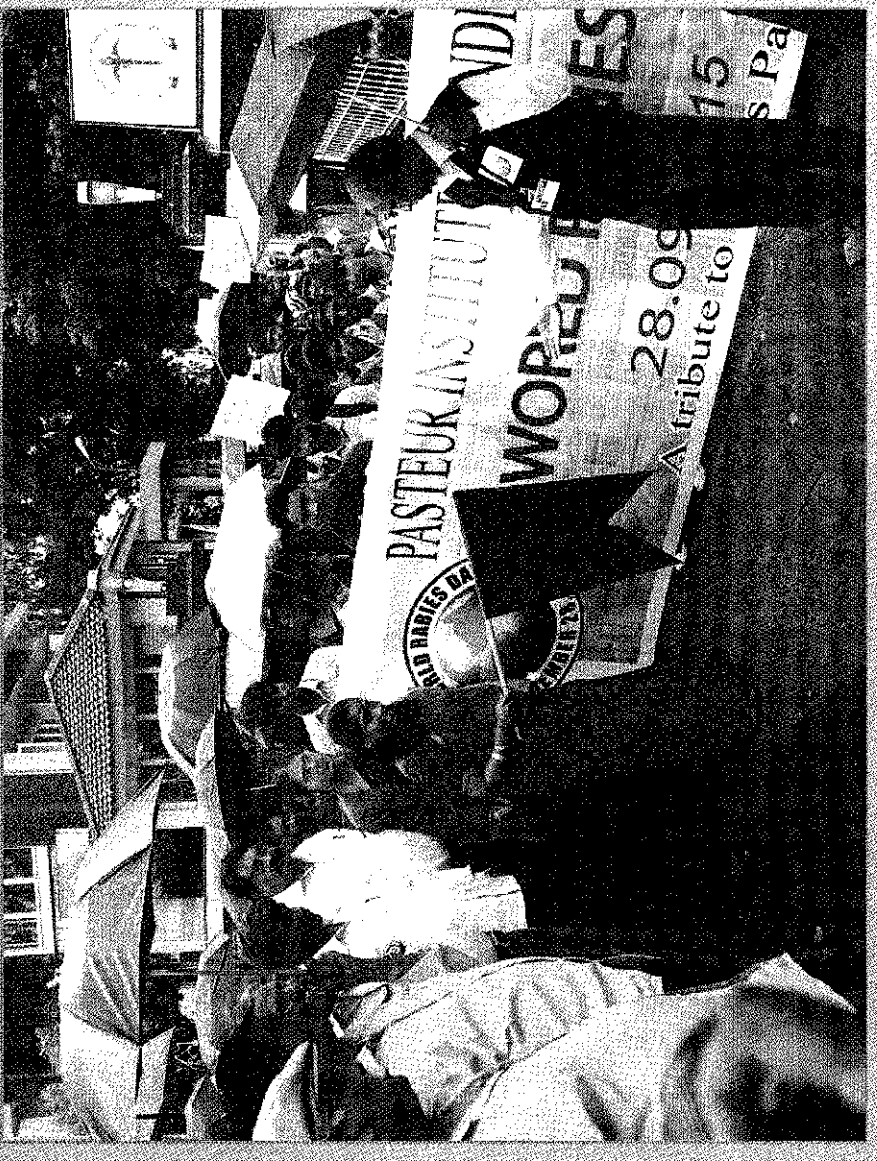


Photo Gallery

World Rabies Day Rally on 28.09.2015



Observation of Hindi Diwas on 29.09.2015



Inspection for Large Animal Breeding facility
by Smt. Prema Mohan, U/s to GOI, CPCSEA on 01.10.2015

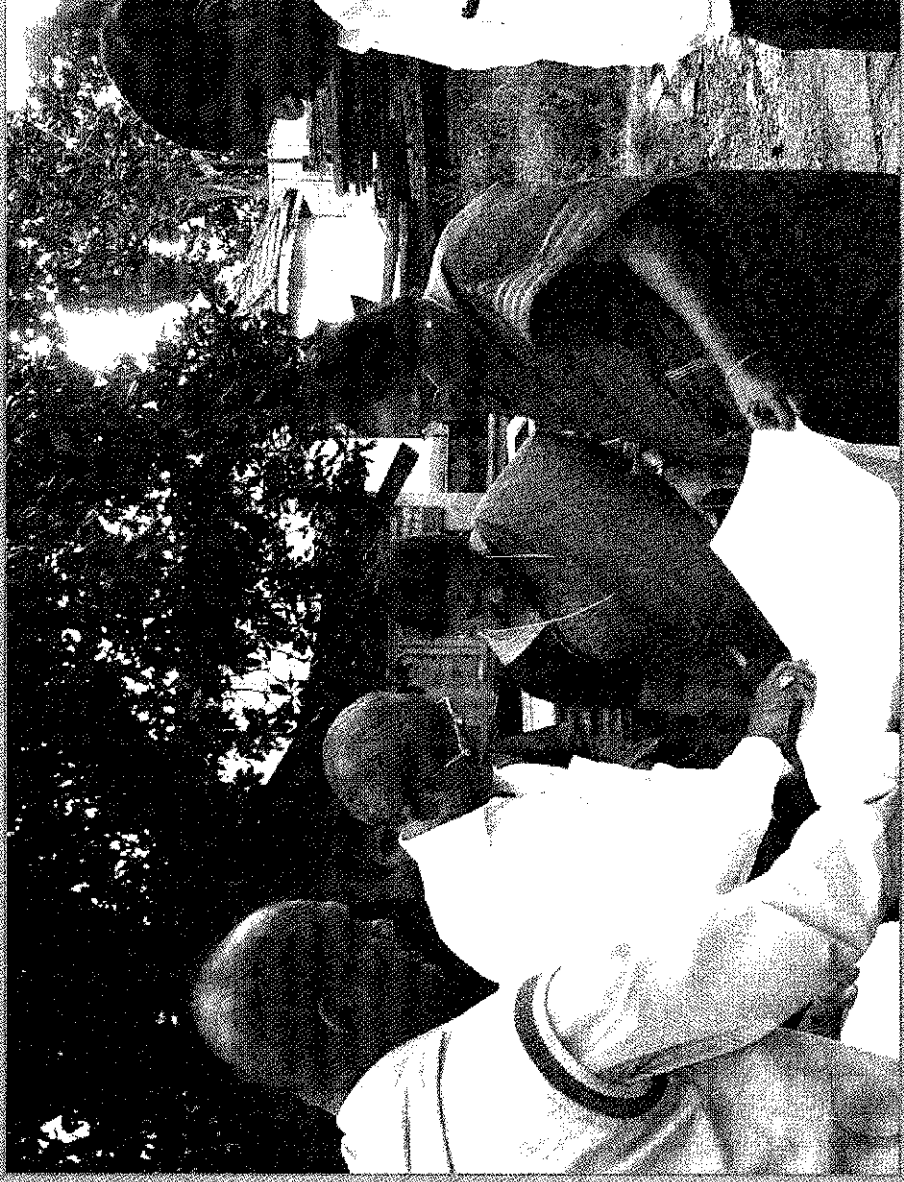


Photo Gallery

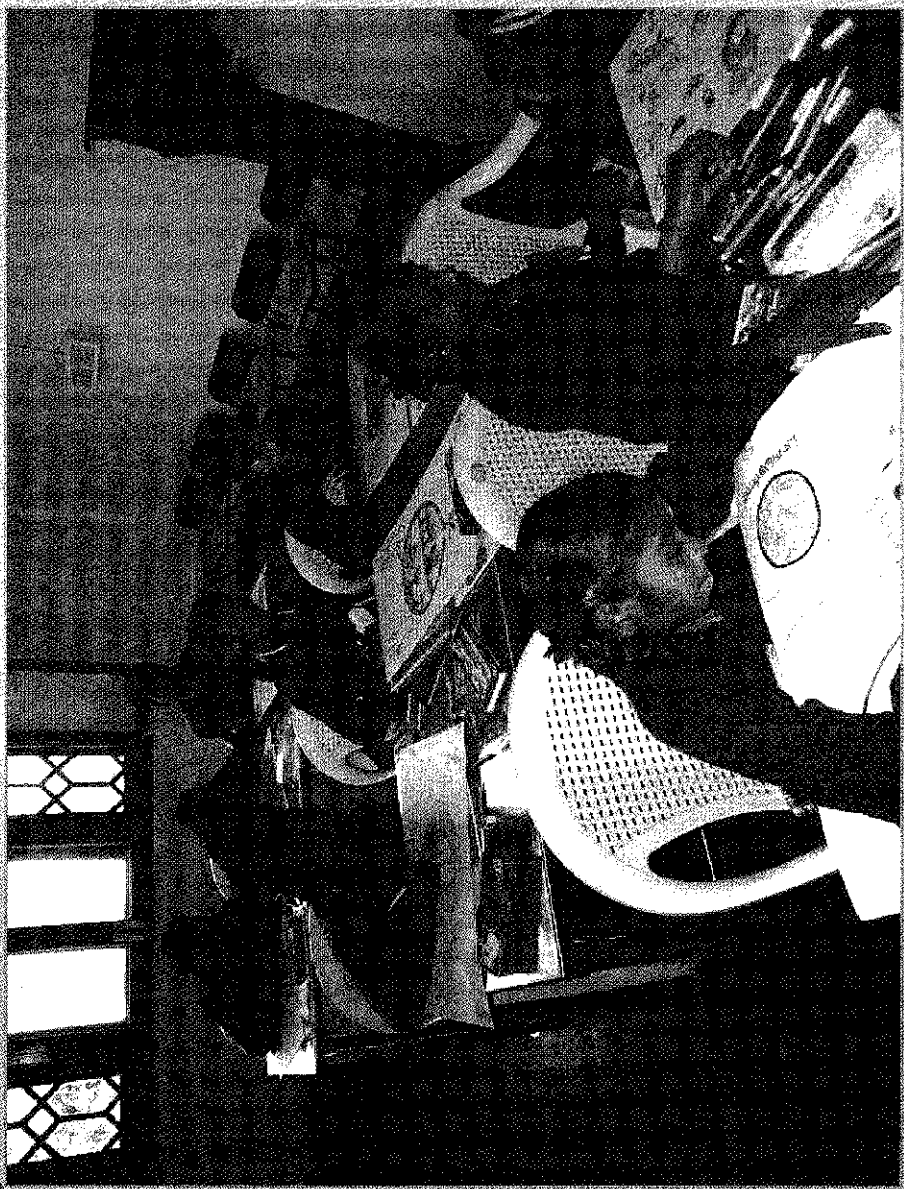
Awareness on Vaccines for School Children as a part of Sarva Shiksha Abhiyan on 07.10.2015



World Rabies Day - Essay Writing Competition on 14.10.2016



World Rabies Day - Drawing Competition on 15.10.2015



World Rabies Day Celebration - Quiz Competition inaugurated by Shri. Paulrasu, IAS, Executive Director, Tea Board of India on 16.10.2015



Photo Gallery

World Rabies Day Celebration - Quiz Competition inaugurated by Shri. Paulrasu, IAS, Executive Director, Tea Board of India on 16.10.2015



World Rabies Day - Quiz Competition on 16.10.2015

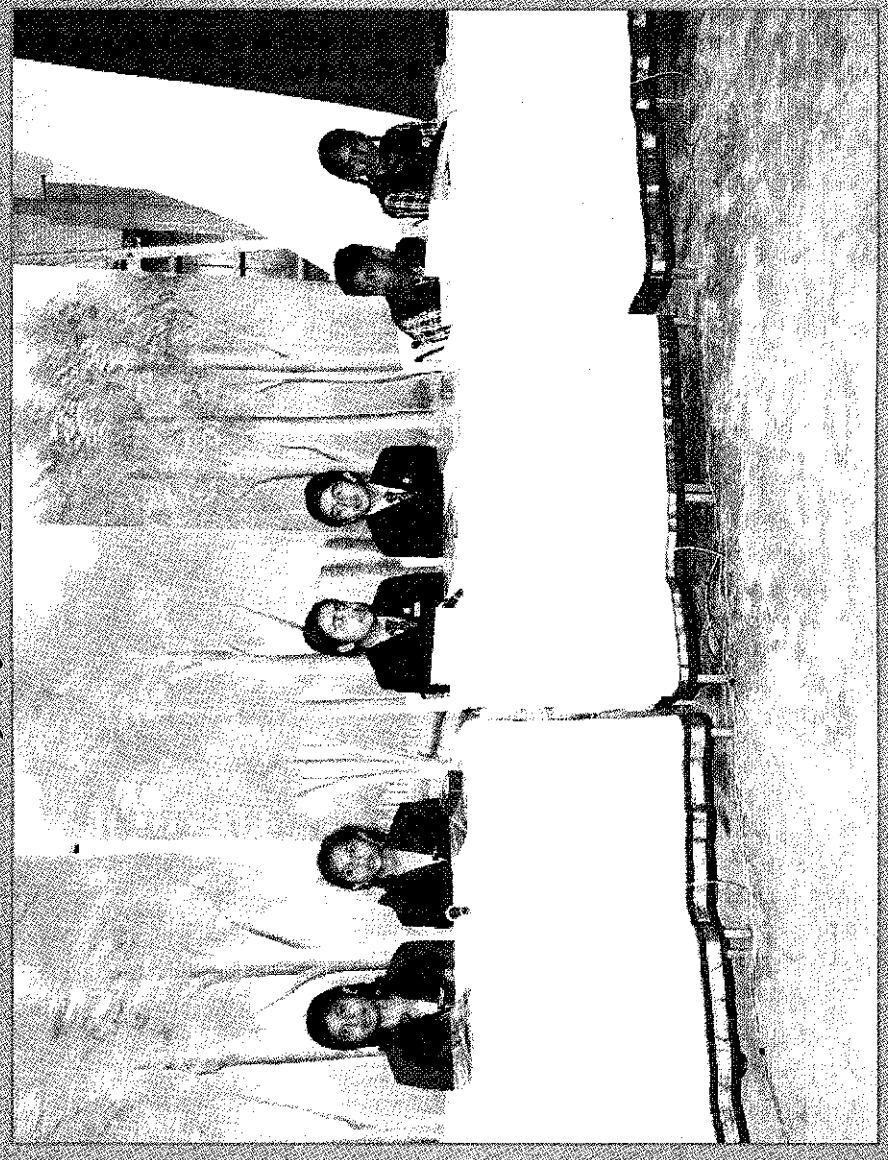


Photo Gallery

Rabies Awareness Programme conducted on the National Science Day at Radio Astronomy Centre, Muthurai, Ooty on 28.02.2016

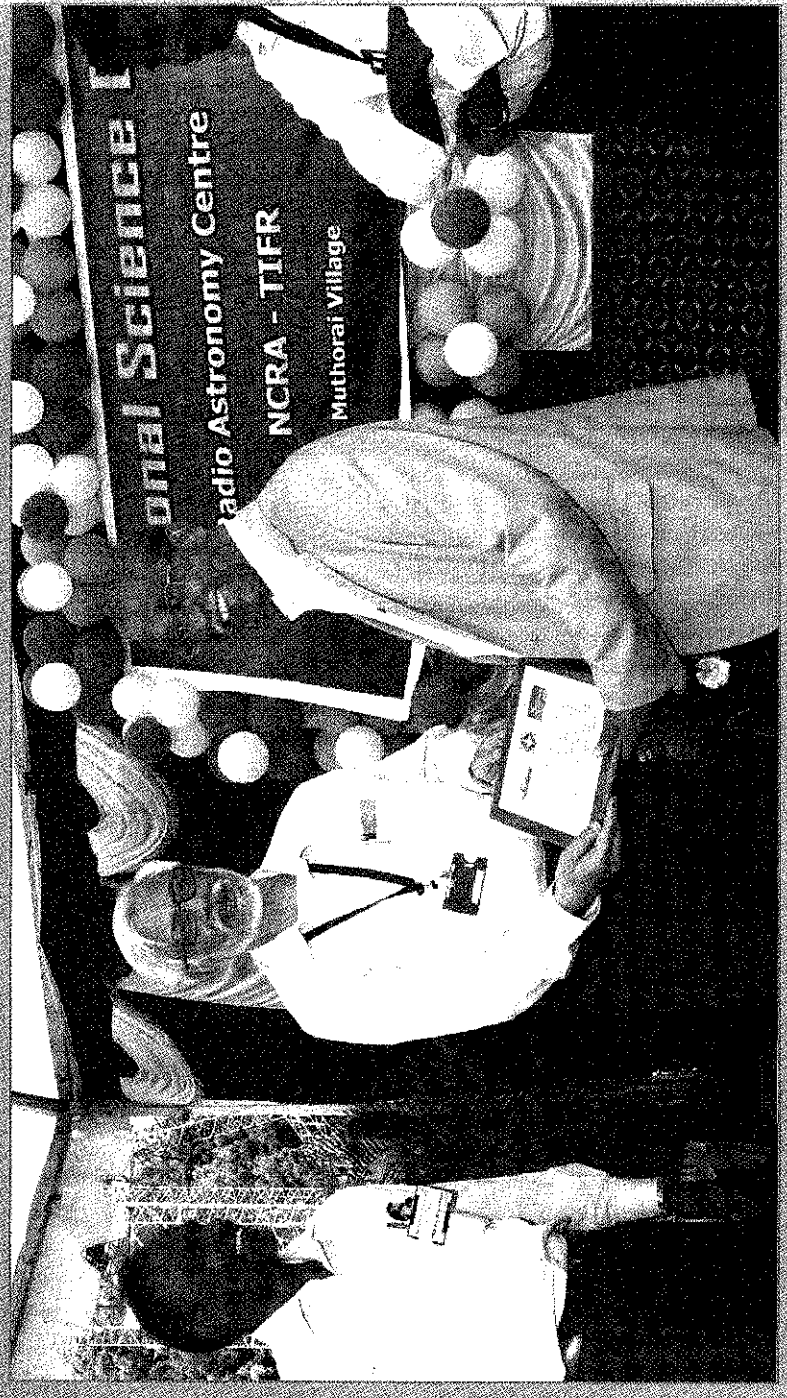


Photo Gallery

Rabies Awareness Programme conducted on the National Science Day at Radio Astronomy Centre, Muthurai, Ooty on 28.02.2016

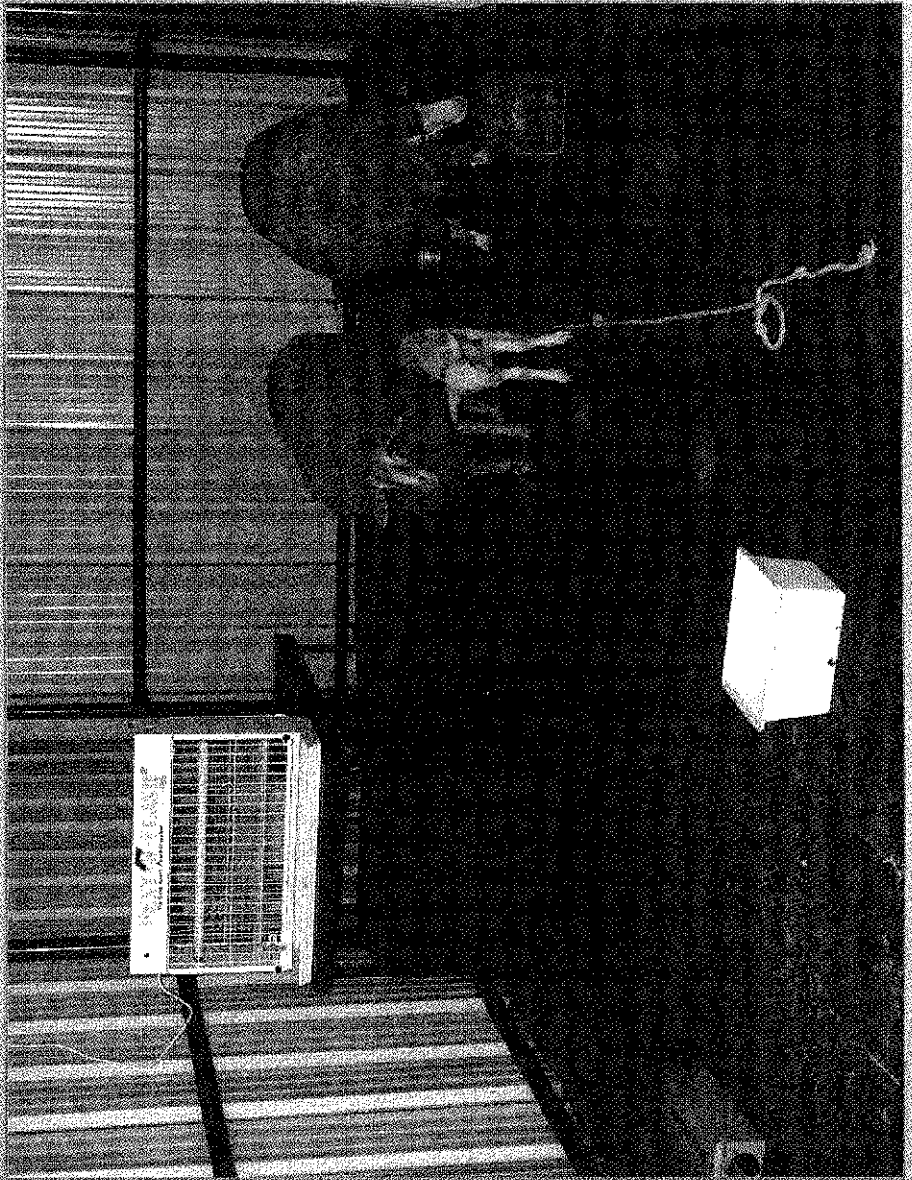


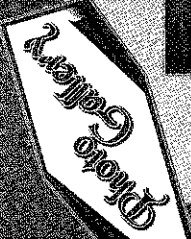
Guinea Pig Colony



Photo Gallery

Large Animal Breeding Facility

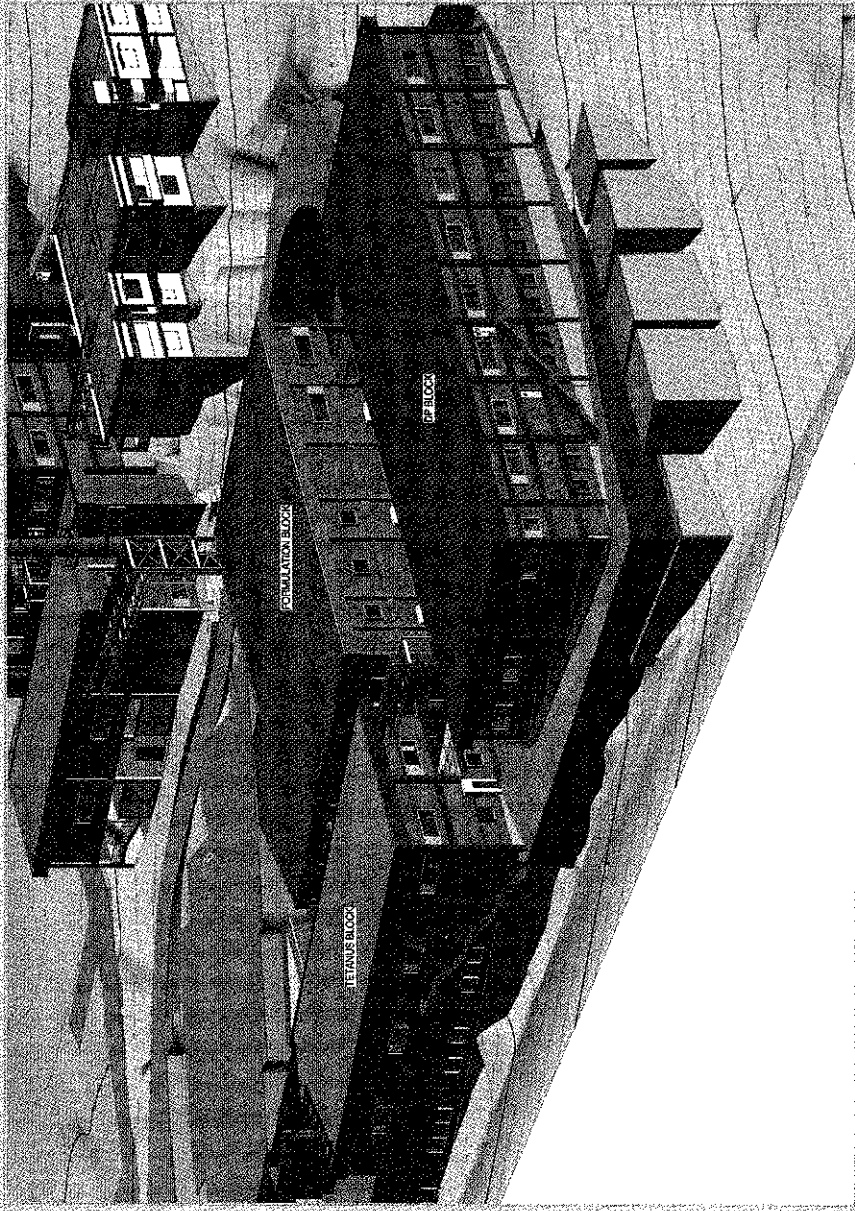




PROGRESS OF CIVIL CONSTRUCTION
DP Block & Formulation Block



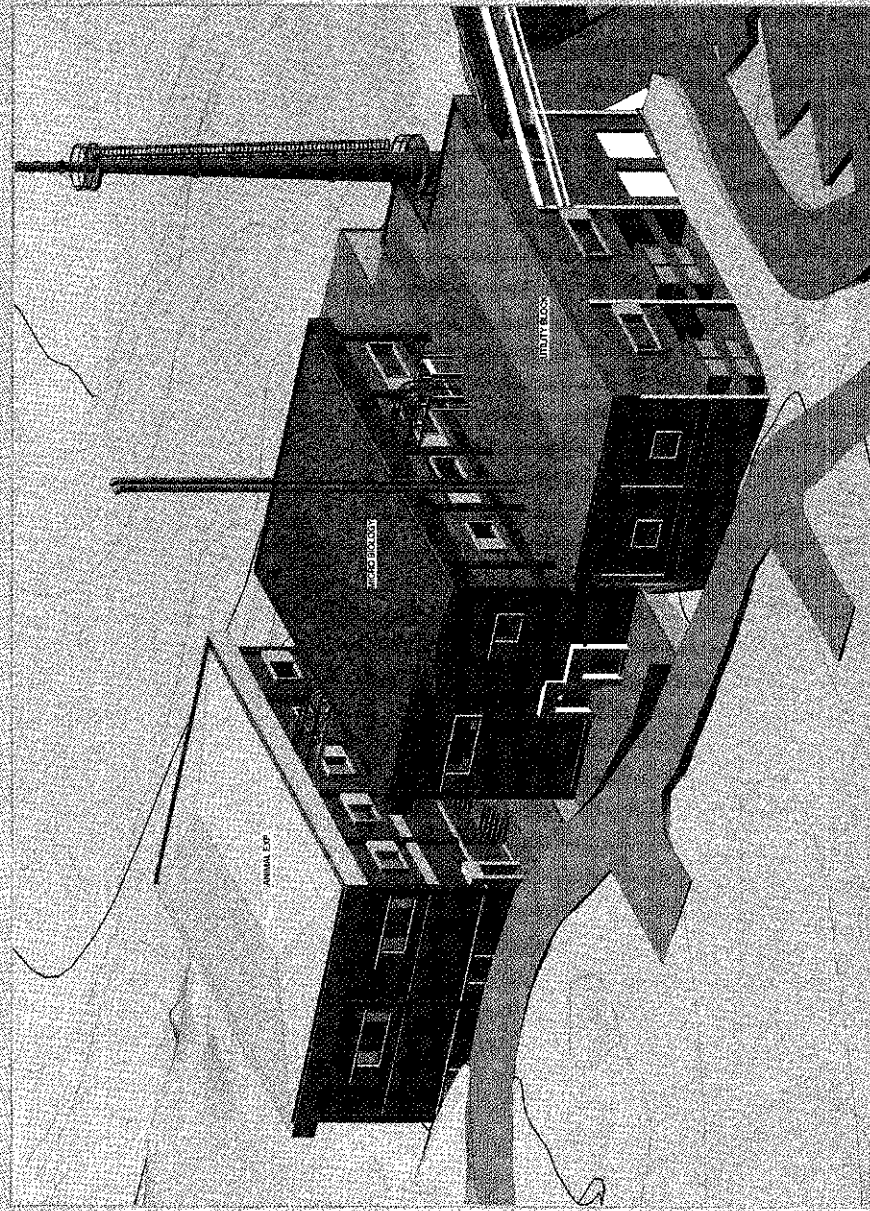
3D View of proposed GMP Facility for DPT Group of Vaccine

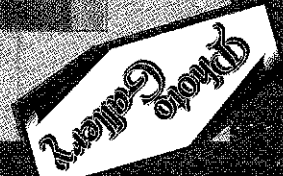
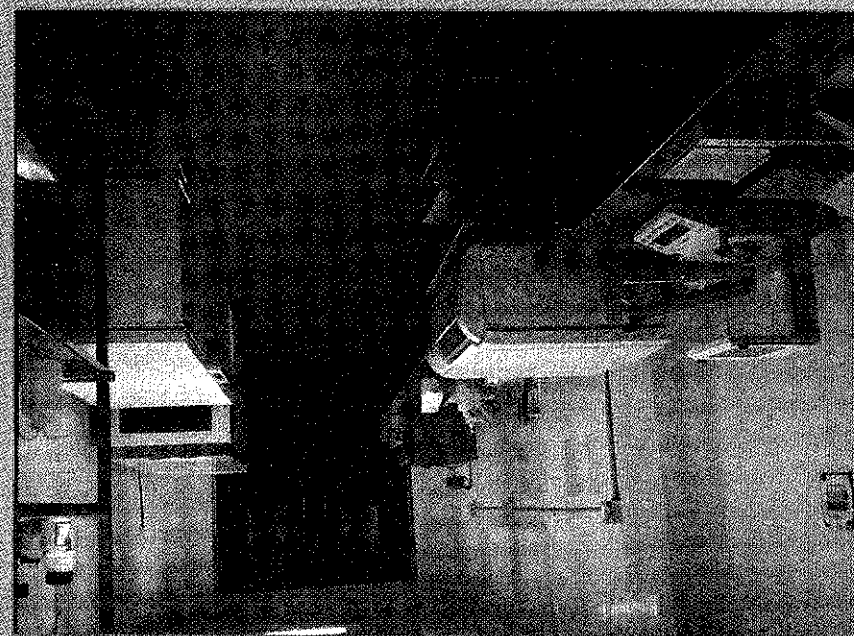
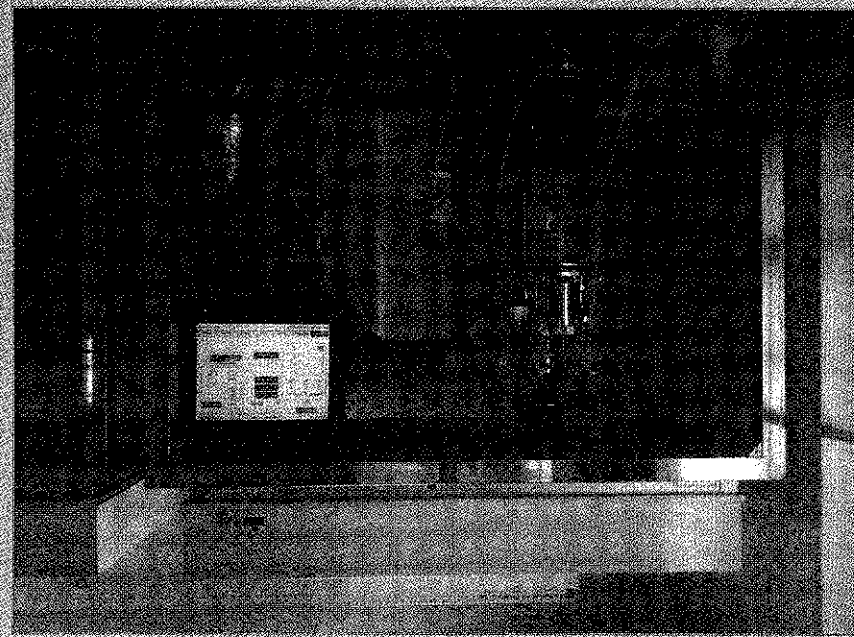
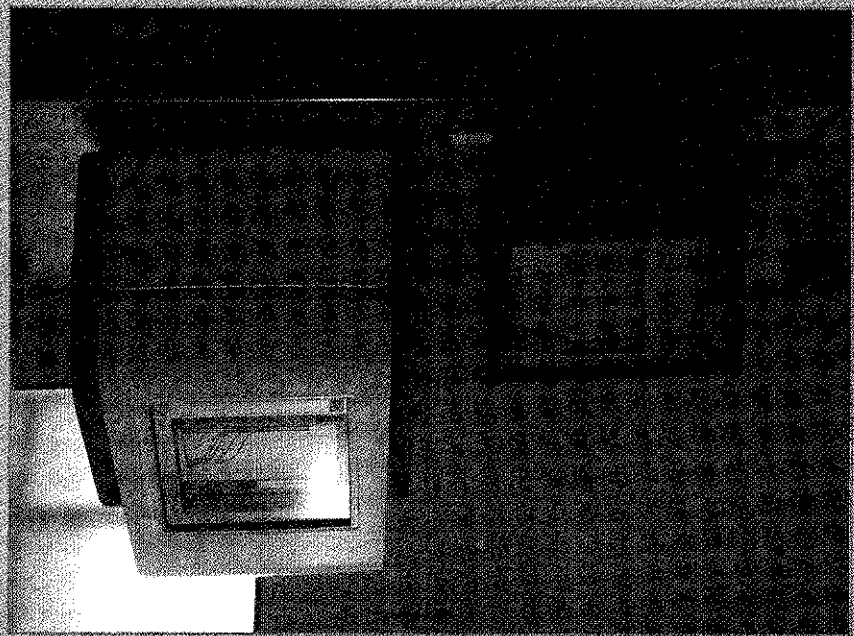


Experimental Animal Block & Microbiology Block



3D View of Animal Experimental Block, Microbiology Block & Utility Block





Press Reports on various programmes Organized by PIIC

'Nilgiris may become a rabies-free district soon'

The Nilgiris District Health Officer (DHO) has announced that the district is on the verge of becoming rabies-free. He said that the last case of rabies was reported in the district in 1971. The DHO said that the district is now free of rabies and that the health authorities are confident that the district will remain free of rabies for good.

The DHO said that the health authorities are confident that the district will remain free of rabies for good. He said that the health authorities are confident that the district will remain free of rabies for good.

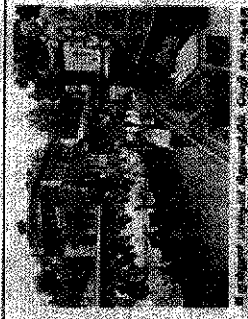


தமிழ்நாடு 20 ஆயிரம் பேர் சிறிதே சேர்ந்தனர் இப்பிரிவு

தமிழ்நாடு 20 ஆயிரம் பேர் சிறிதே சேர்ந்தனர் இப்பிரிவு. இப்பிரிவு சேர்ந்தவர்கள்...

சிறிதே சேர்ந்தனர் 20 ஆயிரம் பேர்

சிறிதே சேர்ந்தனர் 20 ஆயிரம் பேர். இப்பிரிவு சேர்ந்தவர்கள்...



Prizes Given for Essay, Drawing Contests

Prizes were given for essay and drawing contests. The winners were...



விடுதலைப் போராட்டத்தின் விழிப்பு

விடுதலைப் போராட்டத்தின் விழிப்பு. இப்பிரிவு சேர்ந்தவர்கள்...

Quiz Contest on Vaccination

A quiz contest on vaccination was held. The winners were...

OTHER ACTIVITIES DURING THE PERIOD

WORLD RABIES DAY:

RALLY:

In commemoration of Death anniversary of Louis Pasteur, the inventor of Rabies Vaccine, World Rabies Day is observed on September 28th. Pasteur Institute of India, Coonoor a premier vaccine producing Institute working on the control of Rabies for the past 107 years, conducts Rabies awareness rally every year. This year on 28th Sep. 2015, Pasteur Institute of India, Coonoor organized a Rabies awareness Rally inaugurated by Dr. P.G. Bhanumathi, Deputy Director of Health Services, Nilgiris District. In the Rally Staff and Officers of Pasteur Institute of India, Students and Faculties of Providence College for Women, Students and Staff of Government I.T.I., Coonoor comprising of around 500 participants took part. The rally started from Pasteur Institute of India, Coonoor and concluded at Coonoor Bus Stand. In the Rally, placards were displayed carrying messages on the problem of rabies and its prevention. Pamphlets on prevention of Rabies in both English & Tamil were distributed to the general public during the rally.

DRAWING, ESSAY WRITING & QUIZ COMPETITION :

The Pasteur Institute of India, Coonoor, in commemoration of the World Rabies Day which falls on 28th September, organized an inter school quiz competition on '**Role of Vaccine in Human Health**' on 16th October, 2015 at 11.00 a.m. at the St. Mary's Girls Hr. Sec. School, Kotagiri. About 62 schools in Nilgiris District, both private and government schools, were invited for the quiz competition among which 19 teams from different schools participated. The quiz competition was inaugurated by Shri C. Paulrasu, I.A.S., Executive Director, Tea Board of India, Coonoor, in the presence of Sister Mary Stella, Headmistress, St. Mary's Girls Hr. Sec. School, Kotagiri and Mr. Ashwini Kumar, Chief Manager, Bank of Baroda.

The pre-qualifying round for 19 teams was held and 6 teams of 2 students each were selected for the main quiz competition. The main aim of the quiz competition was to create awareness on the importance of vaccine in the prevention of diseases among school children and to the general public through them.

I - Prize was awarded to Mr. Ryan Zacharia and Mr. Jerin Tilak of St. Joseph's Boys Higher Secondary School, Coonoor.

II - Prize was awarded to Ms. Hema Shrees, and Ms. Priyanka of St. Joseph's Convent Girls Higher Secondary School, Coonoor.

III - Prize was awarded to Mr. Alwin J. Antony and Ms. J. Sneha of Kendriya Vidyalaya, Wellington.

The winners were awarded cash prize of Rs.3000/- each for first place, Rs.2000/- each for second place and Rs.1500/- each for third place along with a shield and certificate.

The audience were the students of the St. Mary's Girls Hr. Sec. School, Kotagiri and open questions were also addressed to them and those who answered correctly were awarded. The quiz masters were Dr. Samyak Sahu, Medical Officer and Dr S. Jagannathan, Assistant Research Officer of the

Institute. The programme was co-ordinated by Dr. B. Sekar, Director of Pasteur Institute of India, Coonoor.

Prior to the quiz competition, Pasteur Institute of India, Coonoor had also conducted Drawing Competition on '**Health and Environment**' and Essay Writing Competition on '**Vaccine and Disease Prevention**' among the school students of Nilgiris District on 14th and 15th October, 2015 respectively. 34 candidates from 17 schools for Drawing Competition and 36 candidates from 18 schools for Essay Writing Competition participated.

Ms. R. Athulya, St. Joseph's Anglo Indian Girls Hr. Sec. School, Coonoor won I prize of Rs.3000/-, Ms. Teja Sri Pradeep, St. Joseph's Anglo Indian Girls Hr. Sec. School, Coonoor won II prize of Rs.2000/-, and Mr. S. Chandru, Govt. Higher Secondary School, Kil Kotagiri won III prize of Rs.1500/- for Drawing Competition.

Ms. R. Suganthi, Govt. High School, Kattabettu won I prize of Rs.3000/-, Ms. D. Vinolya, Cordite Factory Higher Secondary School, Aruvankadu won II prize of Rs.2000/- and Ms. B. Rohini, Govt. High School, Kattabettu won III prize of Rs.1500/- for Essay Writing Competition.

All the winners were also awarded with a Certificate and Shield from Pasteur Institute of India, Coonoor. Certificates were also distributed to all the participants of the above program.

The cash prizes were sponsored by Bank of Baroda and were distributed by Shri Ashwini Kumar, Chief Manager of Bank of Baroda, Coonoor. Shri Suresh Vakil, Chief Manager, State Bank of India, Coonoor, another sponsor and Sister Mary Stella, Headmistress, St. Mary's Girls Hr. Sec. School, Kotagiri actively participated in the function.

On the whole the three competitions held in commemoration of World Rabies Day by Pasteur Institute of India, Coonoor enriched the students with sound educational information on the importance of the vaccine and the disease that can be prevented by vaccination.

CONCLUSION

The reporting year has witnessed an array of activities on the establishment of cGMP manufacturing facility for DPT group of vaccine including Pre-bid meetings, Factory Acceptance Test (FAT) of many critical equipments. The third, fourth and fifth Local Monitoring Committee meetings to assess the progress of cGMP project were conducted. This year we have signed a MoU with TWAD Board, Govt. of Tamilnadu for the supply of 2.9 lakh litres of water per day to ensure the entire water requirement for our upcoming cGMP project.

As done in the previous years, we continued our public health services through our Rabies Diagnostic Lab and Anti Rabies Clinic. We extended technical support to Dept. of Public Health, Govt. of Tamilnadu to take forward the situation of Rabies in Nilgiris district to declare Nilgiris Rabies free in near future. Our academic activities of Post graduate students projects, in-plant training, industrial visit for college student, besides research activities by Ph.D., scholars were continued. This year also we observed "World Rabies Day" on 28th Sep. conducting competitions for school children.

On the whole in this reporting year we accomplished all our plan of activities.

Office Superintendent

1. Mrs K. Mahalakshmi
2. Shri L. Nanjappa
3. Shri B. Krishnamurthy
4. Mrs K. Saroja Devi

Foreman

5. Shri R. Mohan (Superannuated on 30.04.2015)
6. T.G. Irudhayaraj

Sr. Research Assistant

7. Shri G. Chandra Mohan

Sr. Technical Assistant

8. Shri P. Radhakrishnan
(Superannuated on 31.08.2015)

9. Shri M. Madhavan

10. Shri M. Bellan

11. Shri D. Chandran

12. Smt. Victoria Jayaraj

13. Shri M. Subramani

Head Clerk

14. Shri M. Raman

15. Shri R. Ram

16. Mrs S. Sasikala

17. Shri T.K. Balakrishnan

18. Shri S. Ravi

19. Mrs Baredha Jaffarulla

20. Mrs Shanthi Subramani

21. Shri R. Kanagaraj

22. Shri R. Dharmalingam

Pharmacist

23. Shri P. Venkatachalam

Research Assistant

24. Mrs H. Santhila Premkumar

25. Shri V. Raja Karthikeyan

Technical Assistant

26. Shri B.H. Bellie

27. Shri N. Kesu

28. Shri B.J. Basavaraj (deceased on 17.02.2016)

29. Shri S. Sadhasivam
30. Shri K.B. Balakrishnan
31. Shri B. Iyer
32. Shri B. Pandurangan
33. Shri B.B. Shanmugam
34. Shri A. Jaffarulla
35. Mrs Rajalakshmi V
36. Shri S. Govindaraj
37. Shri K. Devaraj
38. Shri N. Ragupathi
39. Shri N.M. Ramakrishnan
40. Shri T. Sigamani
41. Shri A. Sathar
42. Shri P. Shanmugam
43. Shri R. Sathiyamoorthy

Maintenance Supervisor

44. Shri S. Basavaraj
(Superannuated on 31.10.2015)

45. Shri V. Ravi

46. Shri C. Subramanian

Laboratory Technician

47. Shri K. Krishnan

48. Shri J. Shankaran

49. Shri R. Arumugam

50. Shri S. Mani

51. Shri P. Paramasivam

52. Shri A. Paulraj

53. Shri G. Joghee (Deceased on 23.01.2016)

54. Mrs Rubasundari Natarajan
(Superannuated on 31.08.2015)

55. Mrs R. Manjula

56. Mrs Meera Chinnappan
(Superannuated on 31.01.2016)

57. Shri M. Pasupathy
(Superannuated on 31.01.2016)

58. Shri P. Subramanian
(Deceased on 16.05.2015)

59. Shri R. Gopalakrishnan

93. Shri C. Doraiswamy
94. Shri R. Dhurairajan
95. Shri B. Karthick
96. Shri Y.D. Praveen

Laboratory Assistant

97. Shri R. Ayyavoo
(superannuated on 31.08.2015)

98. Shri S. Munuswamy

99. Shri A. Mani

100. Shri M. Subramani

101. Shri S. Umamathy

102. Shri K. Ravichandran (Sr)

103. Shri M.B. Raju

104. Shri A. Dhanabalan

105. Shri M. Radhakrishnan

106. Shri S. Lingam

107. Shri C. Vadivelu

108. Shri B. B. Sundaram

109. Shri R. Gunasekaran (Junior)

110. Shri K. Arumugam

111. Shri P. Periaswamy

112. Shri S. Kanagasabapathy

113. Shri S. Devanbu

114. Shri M. Murugan

115. Shri S. Chandrasekaran

116. Shri B. Sivalingam

117. Shri K. Elancheran

118. Shri M. Gunasekaran

119. Shri L. Murthy

120. Shri K. Manoharan

121. Shri R. Manisekaran

122. Shri T. Vijayakumar

123. Shri T. Malleswaran

124. Shri N. Mohan

Maintenance Assistant

125. Shri B. Nataraj

126. Shri R. Ravi

127. Shri R. Saravanan

128. Shri V. Radhakrishnan

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Library Clerk

129. Shri K. Sivalingam

Truck/Van Driver

130. Shri G. Thanaraj

131. Shri P. Rajendran

132. Shri S. Krishnamoorthy

(Superannuated on 31.12.2015)

Duffadar

133. Shri S. Ragunathan

Multi Tasking Staff

134. Shri V. Vijayan

135. Shri R. Mohan

136. Shri N. Poornachandran

137. Shri G. Ravi

138. Shri R. Siddayan

139. Shri R. Vasudevan

140. Shri P. Krishnaswamy

141. Shri R. Durai

142. Shri K. Ravichandran (Jr)

143. Shri T. Natarajan

144. Shri R. Sreenivasan

145. Shri M. Thiyagarajan

146. Shri S. Gangadharan

147. Shri Y. Vincent Heuman

148. Shri J. Selvan Vincent Raj

149. Shri A. Velmurugan

150. Shri S. Murugan

151. Shri M. Murugan

152. Shri M. Thirumoorthy

153. Shri K. Mani

154. Shri K. Ambiraj

155. Shri D. Surendran

156. Shri R. Dharmaraj Shanmugam

157. Shri S. Anandan

158. Shri K. Ganesan

159. Shri K. Manohar

160. Shri V. Jayaraman

161. Shri S. Pakkiarayan

162. Shri A. Singaravelu

163. Shri V. Kanagaraj

164. Shri A. Karupiah

165. Shri P. Nandakumar

166. Mrs B. Jayalakshmi

167. Shri M. Ganesan

168. Mrs Dhanamani Murugesan

169. Shri R. Raghu

170. Shri R. Gunasekaran

171. Miss B. Saroja

172. Shri G. Saravanamoorthy

173. Shri B. Ramu

174. Shri L. Murali

175. Shri N. Ramadass

176. Shri M. Ravindran

177. Mrs R. Parvathi

178. Mrs M. Geetha

179. Shri ChandraBahadur Karki

180. Shri Min Bahadur Katri

181. Shri Bommiraj Bahadur

182. Shri K. Heera Bahadur

183. Mrs K. Kalavathi

184. Mrs R. Kamatchi

185. Mrs Shanthi Rajkumar

186. Mrs Lissy Easwaran

187. Mrs Sivarani

188. Mrs D.R. Latha

189. Shri G. Ramesh

190. Shri S. Balasubramani

191. Shri A.K. Jithendran

192. Shri A. Senthikumar

193. Shri G. Saravanan

194. Shri P.K. Anandan

195. Shri R. Vinoth

196. Shri B.N. Haldurai

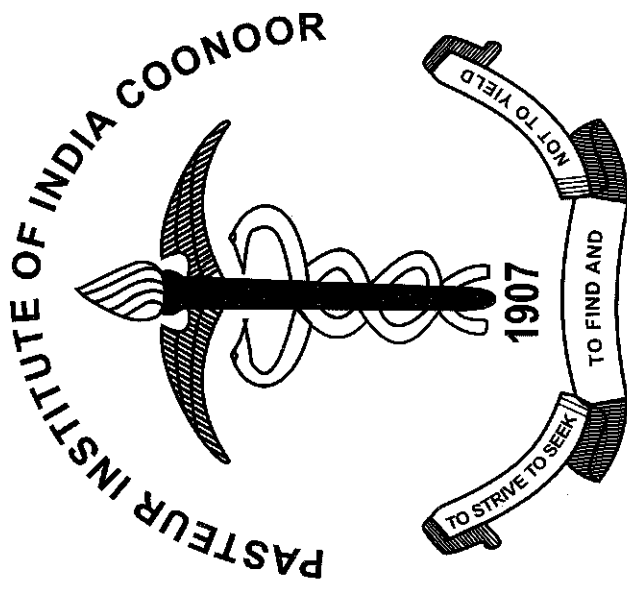
197. Mrs.S. Pavithra

198. Mrs. M. Mahalakshmi

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PASTEUR INSTITUTE OF INDIA

COONOOR 643 103, NILGIRIS
TAMILNADU



SCIENTIFIC REPORT

2015-16

STUDENT PROJECT CARRIED OUT AT THIS INSTITUTE

Studies on in-vitro potency analysis of Rabies vaccine

Naveen Kumar - Arulmigu Meenakshi College of Engineering, Thiruvannamalai
 Pavithra - Karunya University, Coimbatore
 Rene Angel - Government College of Technology, Coimbatore
 Supervisor : Dr. A. Premkumar, Research Officer

ABSTRACT

Immuno diffusion method wherein samples taken from different stages of vaccine production are assayed along with a standard vaccine or reference antigen of known antigenic content. This method requires approximately 48 hours and skilled labour to predict accurate results. The study also focuses on Dot Blot a solid phase semi quantification immune assay for antigen-antibody interaction. The ultimate aim of the study would be to reduce the time involved and predict more accurate results by using alternative techniques.

Comparative Analysis of yield and recovery of rabies viral protein using Sphacryl S 200 for the production of Tissue Culture derived human rabies vaccine

Dinesh Kumar - CMS College of Science and Commerce, Coimbatore
 Supervisor : Dr. S. Jagannathan, Dr. Mrs. Jeevakalaiseivan, Dr. B. Sekar,
 Pasteur Institute of India

ABSTRACT

India is highly endemic country for rabies and tops the list regarding contribution of human deaths due to rabies in the world. 20,000 (or 2 per 100,000 population) human rabies deaths occur in India annually. Currently TCARV vaccine was used for rabies in India, at PIIC the TCARV vaccine was producing, using with Cellulose Sulfate affinity chromatography utilized with increased concentrations of NaCl. Design of Experiment (DOE) was carried out using with statistical tool called MiniTab 17 (Trial version) to obtain the optimal factors for CS affinity column by Response Surface Methodology (RSM). The Concentrated inactivated PVII fixed rabies viral protein was subjected to purification utilising optimal parameters of the same. Post purification, the fractions with highest concentration of protein was pooled. These pooled fractions were subjected to size exclusion column chromatography exploiting Sephacryl S200 column to minimise/remove the concentration of NaCl. Optimal factor for CS affinity column was (Height-5cm, Flow rate-2.5ml/min and the Protein load concentration-85µg/ml), the CS purified Con 02/12 was withstand its protein content, reducing the host cellular protein as well as the residual cellular DNA along with minimal loss of antigen, along with higher NaCl concentration (383 mM, 4300µs/cm & the SRID potency diffusion ring diameter was 5.8 mm), due to this polydistribution of protein was observed in DLS analysis. Further the NaCl concentrations was drastically reduced by G50 (1135.5µs/cm) S-200 (1194µs/cm), but in case of the SRID diffusion rings diameter was 5.6 & 5.1 respectively, it reveals the diminutive amount of antigen was lose. Significant reduction in the ionic concentration of Na⁺ and Cl⁻ were observed with the help of conductivity tests. Also this would need further studies in the production column, the protein stability and charge was found within the limit it reveals the stabilized protein This proved that the protein was in monomeric state because of the absence of the NaCl. Promise to hold good scope for further research maximising the utility of this column material.

Alternative Purification techniques of PV11 rabies viral protein for production of Tissue Culture Anti Rabies Vaccine (TCARV) (human use) by optimizing chromatographic technique

Ms. Sana - CMS College of Science and Commerce, Coimbatore
 Ms. Anu - Sri Krishna College of Arts and Science, Coimbatore,
 Ms. K. Venu - Arulmigu Meenakshi Amman College of Engineering, Thiruvannamalai
 Supervisors : Dr. S. Jagannathan, Dr. Mrs. Jeevakalaiseivan, Dr. B. Sekar,
 Pasteur Institute of India

ABSTRACT

Rabies is an enzootic and epizootic disease of world-wide importance. Some countries have achieved "rabies free" status by vigorous campaigns of elimination, while in others the disease has never been introduced. Geographic boundaries seem to play an important role here. More than 99% of human rabies deaths occur in the developing world. However, human rabies is not uncommon in many developing and canine-endemic countries. The PV 11 rabies virus was recently used for the production of Vero cell derived rabies vaccine at Pasteur Institute of India. During the production used with affinity chromatographic system, the eluted fractions of rabies viral protein was further processed for removal of higher salt existing used with tangential ultrafiltration system, while using that the losses of rabies viral protein along with higher salt. In the present study concentrated inactivated PV11 infected rabies viral protein was selected based on its traits subsequently to affinity column chromatographic purification utilising Cellulose Sulfate matrix. The elution was performed with increasing concentration of NaCl. Design of Experiment (DOE) was carried out using with statistical tool called MiniTab 17 (Trial version) to obtain the optimal factors for CS affinity column by Response Surface Methodology (RSM). The selected and pooled fraction containing Na⁺ and Cl⁻ ions were desalted and further purified by utilising Response Surface (RSM) design for G50 and CL-4B column. This optimised the parameters for column elution and the results obtained are encouraging for further studies. The Concentrated inactivated PVII fixed rabies viral protein was subjected to purification utilising optimal parameters of the same. Post purification, the fractions with highest concentration of protein was pooled. The Optimal factor for CS affinity column was (Height-5cm, Flow rate-2.5ml/min and the Protein load concentration-85µg/ml), the CS purified rabies viral protein was withstand its protein content, reducing the host cellular protein as well as the residual cellular DNA along with minimal loss of antigen, along with higher NaCl concentration (383 mM, 383 mM, 4300µs/cm & the SRID potency diffusion ring diameter was 5.8 mm), due to this polydistribution of protein was observed in DLS analysis. Further the NaCl concentrations was drastically reduced by G50 (1135.5µs/cm) CL 4B (1129.1µs/cm), but in case of the SRID diffusion rings diameter was 5.6 & 4.9 respectively, it reveals the diminutive amount of antigen was lose. Significant reductions of Na⁺ and Cl⁻ ionic concentration were observed with the help of conductivity tests. Also this would serve as an immediate successor of ultrafiltration that is currently in use for the same purpose, the protein stability and charge was found within the limit it reveals the stabilized protein; this proved that the protein was in monomeric state because of the absence of the NaCl. Promise to hold good scope for further research maximising the utility of this column material.

In silico analysis of better interacting agents of Glycoprotein from fixed rabies virus vaccine strain

R. Balan - Kumaraguru College of Technology, Coimbatore
Supervisors : Dr. S. Jagannathan, Dr. Mrs. Jeevakalaiselvan, Dr. B. Sekar,
Pasteur Institute of India

ABSTRACT

An estimated 55,000 deaths annually all over the world due to rabies virus transmitted by various zoonotic species is astounding for a disease that is 100% preventable, in India, 23,000 deaths occur annually. 99% of these diseases are transmitted by rabid dogs. Fatality of this disease is 100% once the virus reaches the brain, neglecting few cases were Milwaukee protocol has had its effect. Glycoprotein of rabies virus confers immunogenicity to the injected host. Vaccines in the form of subunit, live attenuated strains and DNA are available yet large reservoirs of this virus and potential to reversion of its pathogenicity provides scope for newer enriched and safer vaccines. In the present study, the glycoprotein of fixed rabies virus vaccine strain sequence was retrieved Uniprot KB. This was modelled using RaptorX server, Phyre2 and Modeller from H-H pred Expaty. Various inactivating agents that are >95% similar to β -Propiolactone(BPL), glutaraldehyde, formaldehyde, psorafen and Ascorbic acid were collected from Pubchem Database. The protein was prepared using Proteinprep of Maestro suite of Schrodinger. The ligands were prepared using Ligprep of the same suite. The prepared ligands were docked and against the prepared protein. The highest docking score (ΔG) of -5.63 was obtained for a derivative of ascorbic acid. BPL had a docking score of -2.01 were as the plant derivative psoralen has a maximum value of -2.51. The binding affinities in the form of ΔG values that were obtained have been recorded and a potential alternative to the existing carcinogenic chemical BPL has been identified. The efficiency as an inactivating agent could be confirmed only with *In vitro/In vivo* experiments yet the fact that the binding affinities of various compounds are much higher when compared with BPL remains the same. Therefore, to conclude the efficiency of these compounds have been proven in *In Silico* studies.

Comparative study of Diphtheria toxin produced from Papain Digest Medium and Semi-Synthetic medium

G. Sandiya - Bharathiar University, Coimbatore
Angelin - CMS College of Science & Commerce, Coimbatore
M. Abinaya - RVS Arts & Science College, Coimbatore
Supervisor : Smt. Shanthi Mani, Pasteur Institute of India

ABSTRACT

Diphtheria is an acute often fatal disease caused by *Corynebacterium diphtherie*. The present study was focused on the growth of *Corynebacterium diphtherie* in a synthetic and semi-synthetic media in comparison to the conventional PDM media. The regular production medium namely Papain Digest Medium contains meat as an important component. In this study, a media of bovine origin a casein hydrolysate namely NZ-Amine A and AS used as supplement to meat. A study attempted to standardize and optimize the synthetic media in the place of meat for cultivation of Diphtheria vaccine strain. Three batches were done in conical flasks. Batch 1 : synthetic media, Batch 2: semi-synthetic media Ratio 1:1 and Batch 3: Ratio 1:3 (PDM: A & S) in comparison to the PDM media. Samples subjected to Lf, ELISA to estimate the affinity of Antigen and Antibody. SDS-PAGE to study the band pattern of the samples from the three media.

Study of Efficacy of two strain combination of whole cell Pertussis vaccine

S. Abinaya - St. Micheal College of Engineering & Technology, Sivagangai
R. Anitha - St. Micheal College of Engineering & Technology, Sivagangai
T. Aravindhan - Bharathiar University, Coimbatore
Supervisor : Mr. K.C. Sivanandappa

Pertussis /Whooping Cough is a bacterial respiratory disease caused by *Bordetella pertussis*, a gram negative bacillus. The disease is more severe in infants and young children. The effective control of Pertussis disease requires assurances of potency of the vaccine.

Pertussis /Whooping Cough is a bacterial respiratory disease caused by *Bordetella pertussis*, a gram negative bacillus. The disease more severe in infants and young children. The effective control of Pertussis disease requires assurances of potency of the vaccine.

In the view, in the present study an attempt has been made to evaluate the efficiency of two strain combination vaccine production. The two strains of Pertussis 19190 and 509 are selected and revived separately in the BG medium, after both strains were cultivated in the shaker flask culture at 35°C at 48 hours. The growth was ensured by purity, opacity and sterility. Further culture of strain 19190 and 5.09 were blended in the ratio 4.5 : 5.5 and checked for sterility. The blended vaccine (two strain) is used for animal tests such as toxicity and potency as well as the vaccine sample also used for preparation of Guinea pig and sera. Further the pooled antisera sample were subjected to purification by G50 (size exclusive chromatography) method and fractioned samples were analysed and structural ability in the SDS PAGE are found to be the presence of bands, it reveals all antibodies.

The two strain of B. Pertussis pool (19190 & 509) γ was found to be 5.82 IU/ml, as per WHO norms the potency value of B. Pertussis should be above 8.0 IU/ml. This result findings shown needed further research to evaluate.

Comparative analysis of Growth rate of vero and murine neuroblastoma-2A cell line in different cell culture growth media

S. Abhiraj - CMS College of Arts & Science, Coimbatore
Ms. N. Saranya - Sri Krishna College of Arts & Science, Coimbatore
Supervisors - Mr. C. Palaniappan & Dr. N. Sivananda

The culture medium is the most important component of the cell culture environment, because it provides the necessary nutrients, growth factors and hormones for the cell growth and multiplication, as well as regulating the pH and osmotic pressure of the culture. The present study describes the comparative analysis of growth rate of Vero and Murine Neuroblastoma-2A cell lines in five different media and also the adaptation of rabies virus strain (PV 3462) in Murine Neuroblastoma -2A cell line. The cell lines shows favourable growth rate in five different media with the exception of chick embryo fibroblast medium which shows less growth rate in vero cell line nad Media 199 shows less growth rate in Murine Neuroblastoma - 2a cell line. The titre value of PV 3462 adapted Neuro cells show less in chick embryo fibroblast medium and is higher in medium 1899 as compared with other media in the first passage and further study is required to elaborate it.

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Study on Adaptation and Infectivity titre of Rabies Virus strains (PV 11 and PV3462) in Mammalian cell lines

Shijin T K - School of Health Science, University of Calicut, Kerala
Supervisor : Mr. C. Palaniappan & Dr. N. Sivananda

ABSTRACT

The study describes the adaptation of Rabies virus strains (PV11 and PV 3462) in different mammalian cell lines like BHK 21, Vero and Neuroblastoma-2A and also the evaluation of Rabies virus titration. The cell lines are susceptible when infected with PV11 and PV3462 rabies virus strains. The viral strains are adapted in these cell lines and the titre also obtained and conclude that BHK 21, Vero and Neuroblastoma-2A cell lines can be used for rabies virus titration and rabies diagnostic works.

Adsorption Studies on Toxoids

T.R. Sowmya - RVS College of Arts and science, Coimbatore
V. Dhanabal - CMS College of Science & Commerce, Coimbatore
J. Bavanandhasivam - Arulmigu Meenakshi Amman College of Engineering, Kancheepuram
Supervisors : Mr. B. Annamalai & Mr. R. Mohan

ABSTRACT

Aluminium adjuvants have been used in practical vaccination for more than half a century to induce early, high-titer and long-lasting protective immunity. Billions of doses of aluminium adjuvanted vaccines have been administered over the years and they are at present, the most widely used adjuvants in both human and veterinary vaccines. In general, aluminium adjuvants are regarded as safe when used in accordance with current vaccination schedules. The present study aims to compare the adsorption rate of final bulks of Diphtheria Toxoid (DT) and Tetanus Toxoid (TT) in preformed and in-situ adjuvant preparations. The safety and the concentration of various monographs used in formulation of the final bulk are ensured with several chemical and biological methods. In-vivo test for specific toxicity was studied in guinea pigs for both the formulations for each component. The antigenic strength and other release criteria's were tested on both the formulations through bio-chemical and immunological assays. The results of the studies reveal that the adsorption rate and safety of the final bulk is similar for both preformed and in situ vaccine preparations. Thereby this study opens up an alternative procedure to the bulks prepared using preformed adjuvants which are approved according to the regulations formulated by Indian Pharmacopoeia.

Enhanced Tetanus Toxin production by Nitrogen Bubbling

R. Balanageshwari - Sri Krishna Arts & Science College, Coimbatore
M. Thamarai Kannan - CMS College of Science & Commerce, Coimbatore
S. Valaiparameshwari - Rathinavel Subramani College of Arts & Science, Coimbatore
Supervisor : Smt. T. Lalitha, Assistant Research Officer

ABSTRACT

We investigated that the effect of exposing of *Clostridium tetani* culture to Nitrogen gas during cultivation gives higher yield of tetanus toxin. *Clostridium tetani* was cultivated with N₂ gas bubbling through beakers containing two litres of MM medium and the controls. N₂ gas bubbling was given for 60 minutes per day upto seven days at 0.1 bar. We found that treatment of the *Clostridium tetani* anaerobe with nitrogen gas during cultivation gives 10% higher yield of toxin than control. The results are encouraging with respect to yield of toxin production in small scale. Based on the results, N₂ bubbling through culture seems to contribute to increase in toxin production and thus substantially improves productivity. The result of this work shows to improve the present production of tetanus toxin and also may be adopted for human vaccine production after detoxification and purification.

Enhanced Tetanus Toxin production by stepwise glucose addition

A Rajkannu - CMS College of Science & Commerce, Coimbatore
A. Arun - Bharathiar University, Coimbatore
Supervisor : Smt. T. Lalitha, Assistant Research Officer

ABSTRACT

This study dealt with effects of stepwise glucose addition during the cultivation of *Clostridium tetani* for tetanus toxin production. *Cl. Tetani* was cultivated with stepwise addition of 0.3% glucose at intervals of 19 hours, 56 hours and 88 hours in MM medium and with control. Finally, 1.1% of glucose concentration was achieved in culture medium. It was found that stepwise increasing of glucose concentration gives 33% higher yield of tetanus toxin than controls. The result of this work shows some improvement the present production of tetanus toxin and also may be adopted for human vaccine production after detoxification and purification.

A study on employee perception towards performance appraisal system with reference to Pasteur Institute of India

Gayatri K M - KCT Business School, Kumaraguru College of Technology, Coimbatore
Supervisor : Shri A. Vairamoorthy, Administrative Officer

ABSTRACT

Performance appraisal (PA) is a systematic and periodic process that assessed individual employee's job performance and productivity with respect to certain pre-established criteria and organizational objectives, the perception on performance appraisal was measured on clarity and communication, coaching and feedback, employee development due to PA system and satisfaction level towards the present PA system in the organization. To study the perception of employees towards Performance Appraisal at PII, Coonoor, primary data through the approved questionnaire and retrieval of secondary data from website of the Institute, statistical tools like frequency and Chi square were used for critical analysis. The total respondents (n=50), in case of gender of respondents male (74%) female (26%), 90% were in above 30,000 in come level. In case of age factor, the age group is between 46 to 55, around 68% respondents were satisfied with the current, reviewing (30%) was suggested by the respondents.

Molecular analysis of Rabies viral protein in in-process biological material

P.K. Mushin, S. Sowmya and S. Meena
Supervisor : T. Sekar

ABSTRACT

Different samples of cellulose sulphate fractionated tissue culture antirabies vaccine in-process biological materials used in this study for the analysis of Rabies antigen content by ELISA, SRID, Dot Biot, HPLC and SDS-PAGE, in ELISA and Dot Blot, the antigen was coated in the solid surface and

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Guinea pig polyclonal antisera as primary antibody and detected with suitable conjugate followed substrate system along with the standard included in the test procedure. High Performance Liquid Chromatography (HPLC) was performed with C18 analytical column as Stationary phase for the analysis and quantification of rabies viral protein. The concentration of the protein concentration were extrapolated by using standard graph. The SRID method was performed to estimate the rabies antigen conventionally and the results were compared with the other serological methods. In the above said methods of protein estimation we got the standard graph gradually increased according to the standard value. SDS-PAGE was performed to study the rabies viral protein based on the molecular weight of each protein migration in comparison with the standard marker. We can able to measure the rabies antigen content by using above specified methods. Even though the method to method variation in result was observed with minor difference. The HPLC requires further study with the suitable protein column for the rabies antigen quantification.

List of students registered (full-time) for Ph.D. programme under Bharathiar University, Coimbatore

Sl.No.	Name of the Candidate	Title of the Ph.D. thesis	Supervisor/Guide
1.	Shri T. I. Navinraj	A pilot scale <i>Haemophilus Influenzae</i> Type b vaccine	Dr. A. Premkumar
2.	Smt. K. Suganya	A pilot scale <i>Helicobacter pylori</i> whole cell vaccine	Dr. A. Premkumar
3.	Smt. S. Bhavani Priya	A pilot scale <i>Staphylococcus aureus</i> whole cell vaccine	Dr. A. Premkumar
4.	Ms. S. Preethi	Construction of Recombinant Diphtheria toxin	Dr. B. Sekar

Staff (Part-time) registered for Ph.D. programme under Bharathiar University, Coimbatore

Sl.No.	Name of the Candidate	Title of the Ph.D. thesis	Supervisor/Guide
1.	Dr. Anjan Jyoti Nath	Evaluation of quality attributes of Rabies vaccines commercially available in India	Dr. K.R. Mani
2.	Shri T. Sekar	Preparation of Rabies Antigen in Bio-reactor, and analysis of serological and HPLC methods, formulation of vaccine different composition and stability and immunogenicity analysis.	Dr. A. Premkumar
3.	Shri G. Chandramohan	Recombinant Rabies vaccine	Dr. A. Premkumar
4.	Shri V. Raja Karthikeyan	Increased production of tetanus toxin	Dr. N. Sivananda
5.	Shri B. Karthick	Chimeric fusion of <i>Bordetella pertussis</i> antigens	Dr. B. Sekar

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Meeting/Conference/Workshop attended by the Director during 01.04.2015 to 31.03.2016

Sl.No.	Period	Particulars
1.	20.04.2015	Attended review status meeting on of Rabies vaccine manufacturers in India at Nirman Bhawan, New Delhi
2.	05.05.2015 & 06.05.2015	Kick-off meeting for seed fermentor at HLL Biotech Limited, Chennai Kick-off meeting for Microfiltration, Ultrafiltration & Sterile Filtration at HLL Biotech Limited, Chennai
3.	06.07.2015 to 09.07.2015	Standing Finance Committee and Governing Body meeting of PII, Coonoor at Nirman Bhawan, New Delhi
4.	10.07.2015	Visited O/o TNPCB to discuss with JCEE for online monitoring system for ETP/STP
5.	06.08.2015	Institutional Animal Ethics Committee, Forest and Climatic Change regarding IAEC approval
6.	19.08.2015	Pre-bid meeting for fabricated equipments at M/s. HLL Biotech Ltd. Chennai
7.	25.08.2015	Pre-bid meeting of waste water treatment plant at M/s. HLL Biotech Ltd. Chennai
8.	07.10.2015 & 08.10.2015	Attended 43 rd Pre-Scientific Advisory Committee (SAC) meeting at NIRT, Chennai as a member
9.	09.10.2015	O/o Central Electricity Authority for enquiring on obtaining license
10.	05.11.2015	Attended software FAT for microfiltration unit at M/s. Merck Millipore, Bangalore
11.	28.11.2015 & 29.11.2015	Attended MICROCON conference of Indian Association of Medical Microbiology at JIPMER, Puducherry
12.	09.12.2015 & 10.12.2015	Attended Performance Review meeting on Vaccine units under the chairmanship of Joint Secretary to Govt. of India (DP), Nirman Bhawan, New Delhi
13.	14.12.2015	Attended FAT program for microfiltration at M/s. Merck Millipore, Bangalore
14.	22.12.2015	Attended FAT program for ultrafiltration at M/s. Sartorius Stedim, Bangalore
15.	19.01.2016 & 20.01.2016	Standing Finance Committee and Governing Body meeting at Nirman Bhawan, New Delhi
16.	20.02.2016	Gave lecture on "An overview of development of vaccines" in the Annual Conference of Indian Association of Medical Microbiologists (Karnataka Chapter) at Bangalore Medical College & Research Institute.
17.	04.03.2016	Visited Defence Food Research Laboratory, Mysore for discussion on molecular characterization of tetanus seed and for Ph.D. scholar projects
18.	07.03.2016	Attended Pre-bid meeting for lab equipments at M/s. HLL Biotech Ltd. Chennai
19.	10.03.2016	Pre-bid meeting for dry fog generator at M/s. HLL Biotech, Chennai
20.	24.03.2016	Factory Acceptance Test for Seed Fermentor at M/s. HLL Biotech Ltd. Chennai

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Sl. No.	Name	Designation	Subject	Place/Organization	Date	Particulars
18.	Smt. Shanthimani	Research Officer	Micro filtration system	M/s Millipore-Merk, Bangalore	9 th to 14 th Dec. 2015	Factory Acceptance Test
	Shri R. Mohan	Research Officer				
	Dr. K.C. Shivanandappa	Asst. Research Officer				
	Shri V. Rajakarthykeyan	Research Asst.				
	Shri B.H. Belle	Technical Asst.				
	Shri K. Devaraj	Technical Asst.				
	Shri V. Manoharan	Asst. Technical Officer				
19.	Shri R. Mohan	Research Officer	Ultrafiltration & sterile filtration equipment package	M/s. Sartorius, Bangalore	21 st to 24 th Dec. 2015	Factory Acceptance Test
	Smt. T. Lalitha	Asst. Research Officer				
	Shri V. Rajakarthykeyan	Research Asst.				
	Sri B.H. Belle	Technical Asst.				
20.	Dr. B. Sundaran	Assistant Director	Meeting	MoH&FW, Delhi	9 th and 10 th Dec. 2015	Performance Review of vaccine units
21.	Dr. B. Sundaran	Assistant Director	Microfiltration	M/s. Merck Millipore, Bangalore	14 th and 15 th Dec. 2015	Factory Acceptance Test
22.	Shri T.G. Irudayaraj	Foreman	Apprenticeship Training	Codissia Hall, Coimbatore	18 th Dec. 2015	Apprentice Training & Recent Amendments in the Apprentice Act, 1961
	Shri S. Ravi	Head Clerk				
23.	Dr. B. Sundaran	Assistant Director	Factory Acceptance Test	M/s. Sartorius, Bangalore	22 nd to 24 th Dec. 2015	Ultra filtration & Sterile filtration equipment packages
24.	Shri R. Mohan	Research Officer	Pre-bid meeting	M/s. HLL Biotech, Chennai	6 th January, 2016	Laundry equipment
25.	Shri T. Sekar	Sr. Research Assistant	Lot-1 re-FAT	M/s. MachinFabrik, Mumbai	27 th Jan. to 1 st Feb. 2016	(Diphtheria & Meat Media Block equipments)
	Shri K. Murthy	Asst. Technical Foreman				
	Shri T.G. Irudayaraj	Foreman				
26.	Shri N.M. Ramakrishnan	Technical Asst.	Lot-2 -FAT		29 th Jan. to 1 st Feb. 2016	
	Shri K. Devaraj	Technical Asst.				
	Shri C. Palaniappan	Sr. Research Officer				
	Smt. Shanthimani	Research Officer				
27.	Shri R. Mohan	Research officer	Factory Acceptance Test	M/s. Scigenics, Chennai	27 th and 28 th January, 2016	Seed fermentor software
	Dr. K.C. Shivanandappa	Asst. Research Officer				
28.	Dr. N. Sivananda	Asst. Research Officer	Pre-bid meeting	M/s. HLL Biotech, Chennai	5 th Feb. 2016	Pre-bid meeting???????
29.	Dr. N. Sivananda	Asst Research Officer	Factory Acceptance Test	M/s. MachinFabrik, Mumbai	16 th to 19 th Feb. 2016	Sterilization package
	Shri T. Sekar	Sr. Research Assistant				
	Shri G. Chandra Mohan	Sr. Research Assistant				
	Shri M.E. Sridharan	Maintenance Technician				
30.	Dr. S. Jagannathan	Asst. Research Officer	Guest Lecture	Dr. N.G.P. Arts & Science College, Coimbatore	10 th Feb. 2016	Biotechnology
31.	Dr. N. Sivananda	Asst. Research Officer	Guest Lecture	Providence College for women, Coonoor	27 th Feb. 2016	National Science Day

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Sl. No.	Name	Designation	Subject	Place/Organization	Date	Particulars
25.	Shri T. Sekar	Sr. Research Assistant	Lot-1 re-FAT	M/s. MachinFabrik, Mumbai	27 th Jan. to 1 st Feb. 2016	(Diphtheria & Meat Media Block equipments)
	Shri K. Murthy	Asst. Technical Foreman				
	Shri T.G. Irudayaraj	Foreman				
26.	Shri N.M. Ramakrishnan	Technical Asst.	Lot-2 -FAT		29 th Jan. to 1 st Feb. 2016	
	Shri K. Devaraj	Technical Asst.				
	Shri C. Palaniappan	Sr. Research Officer				
	Smt. Shanthimani	Research Officer				
27.	Shri R. Mohan	Research officer	Factory Acceptance Test	M/s. Scigenics, Chennai	27 th and 28 th January, 2016	Seed fermentor software
	Dr. K.C. Shivanandappa	Asst. Research Officer				
28.	Dr. N. Sivananda	Asst. Research Officer	Pre-bid meeting	M/s. HLL Biotech, Chennai	5 th Feb. 2016	Pre-bid meeting???????
29.	Dr. N. Sivananda	Asst Research Officer	Factory Acceptance Test	M/s. MachinFabrik, Mumbai	16 th to 19 th Feb. 2016	Sterilization package
	Shri T. Sekar	Sr. Research Assistant				
	Shri G. Chandra Mohan	Sr. Research Assistant				
	Shri M.E. Sridharan	Maintenance Technician				
30.	Dr. S. Jagannathan	Asst. Research Officer	Guest Lecture	Dr. N.G.P. Arts & Science College, Coimbatore	10 th Feb. 2016	Biotechnology
31.	Dr. N. Sivananda	Asst. Research Officer	Guest Lecture	Providence College for women, Coonoor	27 th Feb. 2016	National Science Day

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Sl. No.	Name	Designation	Subject	Place/Organization	Date	Particulars
32.	Dr. B. Sundaran	Assistant	Pre-bid meeting	M/s. HLL Biotech Ltd., Chennai	7 th to 10 th March, 2016	Pre-bid Meeting????
	Sri C. Palaniappan	Sr. Research Officer				
	Sri R. Mohan	Research Officer				
	Sri R. Mohan	Research Officer				
33.	Sri B. Annamalai	Asst. Research Officer	Factory Acceptance Test	M/s. Machin Fabrik Industries Pvt., Ltd., Thane	20 th to 23 rd March, 2016	Sterilization package machines
	Sri N.M. Ramakrishnan	Technical Asst.				
	Sri K. Ravichandran	(Sr) Laboratory Assistant				
	Smt. Shanthimani	Research Officer				
	Dr. K.C. Shivanandappa	Asst. Research Officer				
34.	Sri T. Sekar	Sr. Research Assistant	Factory Acceptance Test	M/s. Scigenisind Pvt., Ltd., Chennai	23 rd and 24 th March, 2016	FAT???
	Sri B. Iyer	Technical Assistant				
	Sri K. Devaraj	Technical Assistant				
	Dr. B. Sundaran	Assistant Director				
35.	Dr. B. Sundaran	Assistant Director	Kick off meeting	M/s. HLL Biotech Ltd., Chennai	29 th and 30 th March, 2016	Fabrication Equipment
	Sri B. Annamalai	Asst. Research Officer				
	Sri R. Mohan	Research Officer				
	Sri R. Mohan	Research Officer				

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