



Haffkine Institute

For Training Research and Testing

**ANNUAL
REPORT- 2010-2011**



ANNUAL REPORT

OF THE

HAFFKINE INSTITUTE
FOR TRAINING, RESEARCH
& TESTING

ACHARYA DONDE MARG, PAREL,
MUMBAI - 400 012.

FOR THE YEAR
2010 - 2011



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HAFFKINE INSTITUTE FOR TRAINING RESEARCH AND TESTING

GOVERNING COUNCIL

PRESIDENT

Dr. Vijaykumar Gavit

(30.10.2009 - till date)

Hon.Minister for Medical Education,

Government of Maharashtra,

Mantralaya, Mumbai-32

Vice President

Shri D. P. Sawant

(19.11.2010- till date)

Hon. Minister of State for Medical Education,

Government of Maharashtra,

Mantralaya, Mumbai-32.

Prof.Varsha Gaikawad

(10.10.2009 - 18.11.2010)

Hon. Minister of State for Medical Education,

Government of Maharashtra,

Mantralaya, Mumbai-32.

Member Secretary

Dr. Abhay S. Chowdhary

Director, Haffkine Institute for Training, Research & Testing,

Parel, Mumbai-12

Members

Shri. Milind Mhaiskar, IAS

Secretary to Government of Maharashtra,
Medical Education and Drugs Department,
Mantralaya, Mumbai-32.

Smt. Seema Vyas, IAS

Commissioner, Food & Drug Administration,
Govt. of Maharashtra,
Bandra-Kurla Complex, Bandra (E), Mumbai-51.

Dr. R. K. Shrivastav

Director General of Health Services,
Ministry of Health & Family Welfare,
Govt. of India, New Delhi.

Dr. W. B. Tayde

Director, Medical Education & Research,
Govt. of Maharashtra, Mumbai-01.

ACADEMIC COUNCIL

- | | | |
|----|---|-------------|
| 1. | Dr. (Mrs.) Mrudula A. Phadke
Former Vice Chancellor, MUHS, Nashik – 422 004.
Visiting Scientist, Haffkine Institute. | Chairperson |
| 2. | Dr. (Mrs.) Nilima Kshirsagar
National Chair in Clinical Pharmacology, ICMR
Dean, PG Institute of MGM, ESIS, Mumbai | Member |
| 3. | Dr. W. B. Tayde
Director, Medical Education & Research,
Govt. of Maharashtra, Mumbai – 400 001. | Member |
| 4. | Dr. Sanjay Oak
Director, Medical Education & Major Hospitals (MCGM),
Dean, Seth G. S. Medical College & K.E.M. Hospital,
Mumbai – 400 012 | Member |
| 5. | Padmashree Dr. T.P. Lahane
Dean, Grant Medical College & Sir J.J. Group of Hospitals
Byculla, Mumbai - 400 008 | Member |
| 6. | Dr. V. A. Tabhane
Director, Institute of Science, Fort, Mumbai – 400 032 | Member |
| 7. | Dr. G. D. Yadav
Director, Institute of Chemical Technology,
Matunga (E), Mumbai – 400 019. | Member |
| 8. | Dr. Abhay S. Chowdhary
Director, Haffkine Institute for Training, Research & Testing,
Parel, Mumbai-400012 | Member |
| 9. | Shri S. P. Gajbhiye
Senior Scientific Officer
I/C Training, Haffkine Institute for Training, Research & Testing,
Parel, Mumbai-400012 | Convener |

ADVISORY COUNCIL FOR RESEARCH

1. **Dr. R. D. Lele**
Emeritus Professor,
Dept of Nuclear Medicine Jaslok Hospital,
Mumbai – 400 026. Chairperson

2. **Dr. (Mrs.) Mrudula A. Phadke**
Former Vice Chancellor, MUHS, Nashik – 422 004.
Visiting Scientist, Haffkine Institute. Member

3. **Dr. (Mrs.) Nilima Kshirsagar**
National Chair in Clinical Pharmacology, ICMR
Dean, PG Institute of MGM, ESIS, Mumbai Member

4. **Dr. D. S. Dakhure**
Director, Directorate of Health Services,
Govt. of Maharashtra, Arogya Bhavan, Mumbai – 400 001. Member

5. **Dr. W. B. Tayde**
Director, Medical Education & Research,
Govt. of Maharashtra, Mumbai – 400 001. Member

6. **Vd. Kuldeep Raj Kohli**
Director of Ayurved, Directorate of Ayurved,
Mumbai – 400 001. Member

7. **Dr. Rajiv Sarin**
Director, Advanced Centre for Treatment,
Research Education in Cancer(ACTREC),
Navi Mumbai – 410 210. Member

8. **Dr. H.S. Palep**
Dr. Palep's Medical Education & Research Trust,
Lower Parel (W), Mumbai – 400 013 Member

9. **Dr. Abhay S. Chowdhary**
Director, Haffkine Institute for Training, Research & Testing,
Parel, Mumbai-400012 Member

10. **Dr. S.P. Vaidya,**
Asst. Director, Department of Clinical Pathology
Haffkine Institute for Training, Research & Testing,
Parel, Mumbai-12 Convener

EXECUTIVE COMMITTEE

- | | | |
|----|---|------------------|
| 1. | Dr. Abhay S. Chowdhary
Director | Chairman |
| 2. | Dr.S.P. Vaidya (21.1.2011 to till date)
Assistant Director | Member |
| 3. | Shri S.P. Gajbhiye
Senior Scientific Officer | Member |
| 4. | Smt. P. V. Ansulkar (1.4.2010 to 20.1.2011)
Senior Scientific Officer | Member |
| 5. | Dr. Sweta.T. Kothari (21.1.2011 to till date)
Senior Scientific Officer | Member |
| 6. | President, Shramik Utkarsha Sabha
(Workers Union Representative) | Invitee |
| 7. | Shri. L. S. Patil (1.4.2010 to 20.1.2011)
Assistant Director /
Chief Administrative Officer | Member Secretary |
| 8. | Shri. D. B. Malekar (21.1.2011 to till date)
Chief Administrative Officer | Member Secretary |

STAFF OF THE HAFFKINE INSTITUTE

ADMINISTRATION

Director:

Dr. Abhay Chowdhary, M.D., DHA, DM Virology, FIMSA.

Chief Administrative Officer:

Shri. D. B. Malekar, B.Com.

Accounts Officer:

Smt. N. U. Gandhi, B.Com.

BACTERIOLOGY

Senior Scientific Officer:

Shri. S.P. Gajbhiye, M.Sc.

BIOCHEMISTRY

Senior Scientific Officer:

Smt. P. V. Ansulkar, M.Sc.

Scientific Officer:

Ms. Amruta A. Naik, M.Sc.

CLINICAL PATHOLOGY

Assistant Director:

Dr. S.P. Vaidya, M.Sc., Ph.D., D.M.L.T., M.H.R.D.M.,
Dip. In Pub. Health

Senior Scientific Officer:

Dr. S. V. Athlekar, M.Sc., Ph.D.

Medical Officer:

Dr. Smt. S.N. Pashte, M.B.B.S., D.H.H.M.
Dr. Smt. S.U. Mane, M.B.B.S.

CHEMOTHERAPY

Senior Scientific Officer:

Dr. A. S. Bobade, M.Sc., Ph.D.

Scientific Officer:

Shri. Ashish L. Asrondkar, M.Sc.

CHEMICAL TESTING UNIT

Assistant Director:

Shri. L. S. Patil, M.Sc., D.M.L.T., D.B.M.

Senior Scientific Officer:

Dr. S.V. Mavlankar, M.Sc., Ph.D., D.B.M.

Scientific Officer:

Smt. S. L. Patil, B.Sc.

Ms. Vrushali N. Patil, M.Sc.

TOXICOLOGY

Senior Scientific Officer:

Shri. A. G. Mitra, M.Sc. (Retired on 31.1.2011)

Scientific Officer:

Dr. Pavankumar H. Chavhan, M.V.Sc.

TRAINING

Officer In-charge:

Shri. S. P. Gajbhiye, M.Sc.

ZOONOSIS

Senior Scientific Officer:

Shri. K. R. Pawar, M.Sc. (Snake Farm)

Dr. (Ms.) M.L. Ramaiya, M.Sc., Ph.D. (Zoology)

Scientific Officer:

Dr. Smt. S. Bapna, M.Sc. Ph.D.

Scientific Officer:

Dr. (Mrs.) Mrunal Ghag Sawant, M.V.Sc.,
(Animal Reproduction)

VIROLOGY

Senior Scientific Officer:

Dr. Sweta T. Kothari, M.Sc., Ph.D., M.B.A.

Scientific Officer:

Shri. Ritwik Dahake, M.Sc.

Shri. Sandeepan Mukherjee, M.Sc.

LIBRARY

Librarian:

Shri. V.D. Mhapsekar, M.A., MLI Sc, M.Phil, Dip.Yoga
Ayurveda, Dip.Journalism & Mass communication

INTRODUCTION

The year 2010-11 was eventful as Haffkine Institute organized National Symposium on Vaccinology & Immunobiology which was attended by scientists of National & International repute. Recruitment of scientists in the various departments has given impetus to the Research, Training & Testing activities of the institute. Their expertise will expand the scope of the laboratory services, which would augment the revenue of the Institute in the near future. Director has re-launched institute's prestigious Haffkine-Bulletin, a research publication, which was discontinued in the past due to unprecedented problems. This quarterly publication has opened a new horizon for upcoming scientists of this Institute as well as Researchers from other academic Institutes & colleges.

Following are the highlights of the various activities of the Institute during the year 2010 -11 by the Institute.

Zoonosis

The Department of Zoonosis is actively engaged in screening program of commercial insecticides. Maintenance of colonies of insects of public health and strains of parasites in experimental animals was continued. Venomous snakes were maintained at the venomous animal unit of the department. During the period 1st April 2010 to 31st March 2011, 2940 visitors visited the department.

Bacteriology

This department imparts training to graduates on anti-microbial efficacy testing of disinfectants as well as to the personnel from various government / semi-government organizations. The department also carries out bacteriological examination of water samples from various sources, testing of various types of water purifiers, *in vitro* anti-microbial testing of disinfectants and anti-microbial agents and Lyophilization of bacterial cultures.

Chemotherapy

The main activity of this department has been training of graduate and post-graduate students for M.Sc. and Ph.D. program. Currently, 3

students have completed their project for M.Sc. (By Research), in organic chemistry. The department has also started short-term training program for graduates and post-graduates.

Chemical Testing Unit

The Testing unit is actively involved in distillation of HPLC grade solvents, standardization of denaturants on GLC and estimation of harmful ingredients in Country Liquor (CL) III samples.

Virology

The Department of Virology is primarily engaged in research on viruses like HIV, Influenza and Rabies virus. The Department is also one of the WHO surveillance centre for Influenza viruses. The department is part of an ICMR-WHO National Influenza Surveillance Project for Human Influenza. A separate Biosafety-3 facility is to be set up with the Department of Virology under the NCDC-World Bank-MoHSW project for pandemic-preparedness for Avian Influenza. It is a National reference centre for Rabies and NCDC / WHO centre for viral Hepatitis for Maharashtra and Goa. The Department is also recognized by the State and the Central FDA for Pharmacovigilance studies in humans and animals. The Department is affiliated to the University of Mumbai & MUHS, Nasik, for M.Sc. and Ph.D. degrees and currently has 12 Ph.D. students and 2 M.Sc. students carrying out research. The Department also undertakes several training programs at an undergraduate and post-graduate student level. These include the Annual Biotechnology Training Program and the Annual Course in Medical Virology (Viro Vitals). Apart from these, training is also imparted in specific virological techniques such as *in vivo*, *in ovo* and *in vitro* cultivation of viruses, Polymerase Chain Reaction, Animal Tissue Culture and Anti-viral assays.

The Department of Virology has numerous state-of-the-art equipment for conducting research in the fields of Virology and Molecular Biology. The laboratories of the department house instruments such as Thermal Cyclers, Real Time PCR, Ultra Pure Water Purification system, -20° and -80°C Freezers, FACS Count, Inverted Microscopes, Refrigerated Centrifuges, Micro plate Readers etc. The department is also involved in various testing activities for commercial and academic purposes. These include diagnosis of viral infections by ELISA and PCR, *in vitro* and *in vivo*

cytotoxicity testing and assaying potential anti-viral agents.

Clinical Pathology

The main activity of this department is diagnostic bacteriology, serology, histopathology and hematology. The department receives clinical samples from E.S.I.S. hospitals, govt. hospitals and public health dispensaries. Anti-microbial testing of commercial synthetic compounds is also done in the department. Two Ph.D. research projects have been undertaken. The department participates in short term training program in biotechnology conducted by the institute.

Training

The institute has offered various training programs for graduate and post graduate students of various colleges. During the period 2010 - 11, 272 students were given admission for Annual Biotechnology program. Twenty seven students were registered for Viro-Vitals training program, whereas 13 students completed short-term research projects. A list of recognized teachers at the institute is given in Appendix I. A list of students registered for M.Sc. and Ph.D. degrees and those who successfully completed their thesis and obtained their degrees is given in Appendix II and Appendix III respectively.

Haffkine institute has introduced a course in Basic Clinical Research Management & Regulatory Affairs from January 2009 onwards. Five batches of students successfully completed the above course and the sixth batch will commence from April 2011. A total of 164 students have registered for the Basic Diploma in Clinical Research Management and Regulatory affairs course since January 2009.

Administrative Bodies

The Governing Council is presided over by the Honorable Minister for Medical Education, Govt. of Maharashtra, met once during the year. Apart from this, the Executive Committee meets once a week to provide smooth functioning of the institute. The Academic and Advisory Council meets up once in a year.

HIGHLIGHTS OF PROGRESS ACHIEVED

1. The Dept. of Science & Technology, Govt. of India, has sanctioned a project titled "Mechanism based screening of Ayurvedic Medicine" to the Dept. of Virology, Haffkine Institute.
2. The institute has been a Govt. of India recognized Centre for Molecular Diagnosis of Pandemic H1N1 (Swine Flu) and virological surveillance of influenza and has carried out testing for > 900 samples during the year 2010-11.
3. The Maharashtra Medical Council has accredited Haffkine Institute to award CME credits to Registered Medical Post Graduates for attending Conferences / Workshops / Symposiums organized by Haffkine Institute.
4. As part of NCDC-WHO Avian Influenza Surveillance project, the 1st BSL-III facility in Mumbai is being setup at the Institute.
5. The Institute has enrolled 19 Senior Research Fellows, 2 Junior Research Fellows & 1 Post doctoral Fellow in various departments who are actively engaged in research in the field of infectious diseases.
6. The Bulletin of Haffkine Institute was started again after a gap of 17 years.
7. Training was provided in following courses;

Sr. No.	COURSE NAME	STUDENTS ENROLLED
I.	Annual Biotechnology Training Program	272
II.	Clinical Research Management	66
3.	Viro-Vitals	27

8. Thirteen (13) students enrolled for short term projects have completed their projects.
9. Seventeen (17) research papers were published in various National & International Journals, whereas, 19 papers were presented in conferences.

10. Revenue generated through Various Training Programs and Testing of products from various Commercial & Academic Institutions in different Departments as well as other sources during the period was ₹ 2,26,48,677/.
11. Dr. Abhay Chowdhary, Director and Head, Department of Virology, delivered the Presidential Oration at 'Microcon 2010', the Annual National Conference of Indian Association of Medical Microbiologists (IAMM) in November 2010.
12. Ms. Shraddha Mehta, Senior Research Fellow, Department of Virology, received the Best Paper Prize in Immunology at 'Microcon 2010', the Annual National Conference of Indian Association of Medical Microbiologists (IAMM) in November 2010.
13. The Department of Virology, organized Organized the 'XIth Annual Conference of Indian Association of Vaccinology and Immunobiology (IAVIB) and National Vaccinology Symposium (VacSym 2011)' from 5 – 6 March 2011.

DEPARTMENT OF ZOONOSIS

TRAINING ACTIVITIES

1. Training provided to students on Real Time PCR.
2. Training provided to students on In vitro-malaria parasite culture
3. Training provided to students for Animal handling, Different routes of drug administration and blood collection techniques during Viro-Vitals from February 2011.
4. Department also actively participates in Annual Biotechnology Training Program (ABT 2010).
5. Training provided to students on Larvicidal activity of various herbal plant extract.
6. Training programs and workshops attended:
 - i. Dr. Mrunal Ghag, had attended Workshop on "Structure and ligand based drug design" at NIRRH, Parel Mumbai during April 20 - 22, 2010.
 - ii. All staff had passed Awareness program of ISO Certification 9001- 2008 conducted by Six sigma quality international Mumbai during July 21 - 22, 2010.
 - iii. Scientific staff had passed internal auditor training course of 90001:2008 conducted by Six sigma quality international Mumbai during July 21 - 22, 2010.
 - iv. Dr. (Mrs.) Mrunal Ghag Sawant, Scientific Officer Class II had attended training on program on high performing teams and leadership issues for women scientist at ASCI, Hyderabad during July 26 - 30, 2010.
 - v. Mr. Sahil Kulkarni had attended basic training in *in-vitro* cultivation of JE virus at National Institute of Virology, Pune during 20 August to 3 September 2010.
 - vi. Mr. Rahul Gosavi had attended EMBO- ICMR sponsored lecture series course on genetics of malaria at NIMR- New Delhi during 21 November to 5 December 2010.
 - vii. Dr. (Mrs.) Mrunal Ghag Sawant had attended symposium on

laboratory Animals Experimental Research at ATREC, Navi Mumbai during December 16 - 17, 2010.

- viii. Dr. (Mrs.) Mrunal Ghag Sawant had attended and completed training for Radiation Safety Officer at BARC, Chembur during December 20 – 28, 2010.
- ix. Mr. Sahil Kulkarni had attended training on Japanese encephalitis virus at SGPGI Lucknow during January 17 - 28, 2011.
- x. Dr. Pratibha and Mr. Paras Mahale attended 15 days Training on Molecular Biology techniques at Bhavans College, Andheri during February 20 to March 6 2011.

RESEARCH ACTIVITIES:

1. *Post – Graduate Students Research Projects*

- i. Assessment of dendritic cell vaccine as an immunotherapeutic agent in Malaria.
- ii. Assessment of BCG vaccines as an adjuvant in Japanese Encephalitis virus vaccine preparation.
- iii. Comparative analysis of different methods for diagnosis of malaria.

2. *Short Term Research Internship Projects*

- i. Assessment of *in vitro* antimalarial potential of plant extracts.
- ii. Evaluation of *Polyalthia longifolia* plant extracts for anti-malarial, Larvicidal and antimicrobial activity.
- iii. Identification of normal midgut flora of mosquito larvae.
- iv. Larvicidal activity of *Bacillus therengensis* and *Bacillus spharicus* on mosquito larvae.

3. *Research projects in progress*

- i. Entomological surveillance of malaria in and around Parel region.
- ii. *In vitro* anti plasmodial activity of known and proven anti-protozoal compounds.
- iii. *In vivo* synergistic potential of BCG with antimalarial compounds in Murine model.

4. **Sponsored Research study**

Research project entitled "Isolation of Tylophorin the most potent anti-allergic principal for respiratory allergic diseases from *Tylophora indica* in vitro culture of somatic cells" funded by DST, Delhi.

5. **Research papers published**

- i. Growth inhibitory and larvicial effect of *Adenthera paronina* L. seeds against *Aedes aegypti* mosquito larvae. Saroj Bapna, P. Chaturvedi and A. Chowdhary. Journal of Phytological Research vol.23, No. 2 Year 2011
- ii. Synthesis and Anti malarial evaluation of 1, 3, 5 tri substituted pyrazoles. B. N. Acharya, Deepika Saraswat, Saroj Bapna and Mahavir Prasad. European J. of Medicinal chemistry, 45(2) 2010, 430-438
- iii. Hypoglycemic activity of *Adentheca poronima* leaves. P. Chaturvedi, Saroj Bapna, and A. Chowdhary. Journal of Phytological Research. Vol. 23 No. 1 Year 2010
- iv. Anti-oxidant activity of alkaloids extract of *Tinospora codefolia* and *Cuscuta leflena*: a comparative study. P. Chaturvedi, Saroj Bapna, and A. Chowdhary. Journal of Phytological Research. Vol. 23 No. 1 Year 2010
- v. Biological control of mosquito Larvae by Cyclopoid copepods. S. Bapna, H. Mayekar, R. Gosavi, S. Kulkarni, M. Ghag, M. Ramaiya and A. Chowdhary Haffkine Bulletin Vol.13 No. 1/ January 2011
- vi. Chemosensory Basis of Mosquito Oviposition Behavior in *Aedes aegypti*., H. Mayekar, S. Bapna, M. Ramaiya and A. Chowdhary. Haffkine Bulletin Vol.13 No. 1/ January 2011.
- vii. Antifungal effect of *Tenospora Cordifolia* (Stem) and *Punica Granatum* (Peel) Against *Aspergillus Niger*. S. Gajbhiye, Pratibha chaturvedi and Abhay Chowdhary. Haffkine Bulletin Vol.13 No. 1/ January 2011
- viii. Study of Hepatoprotective activity of *Cymbopogan citratus* against Hepatotoxicity induced by carbon tetrachloride in female Wistar Rats. Monu Ojha, Pushakar Athlekar, Pallavi Ansulkar, Amruta Naik, Mrunal Ghag Sawant, Sandeepan Mukherjee and Abhay Chowdhary. Haffkine Bulletin Vol.13 No. 1/ January 2011

6. **Research papers presented**

- i. Saroj Bapna and Abhay Chowdhary. Biological control of mosquito larvae by Cylopoid copepods: A laboratory and Field study. International symposium on Recent advances in Ecology and Management of Vectors and Vector Borne Disease, 1-3 Dec. 2010, Pg No. 53
- ii. Ramaiya, M; Bapna, S.; Ghag, M and Chowdhary, A. Entomological survey of malaria in and around Mumbai city. International symposium on Recent advances in Ecology and Management of Vectors and Vector Borne Disease, 1-3 Dec. 2010, Pg No. 68
- iii. Monu Oza, Dr. Mrunal Ghag Sawant, Amruta Naik, Sandeepan Mukherjee. Pallavi Ansulkar and Dr. Abhay Chowdhary. Antimicrobial and antioxidant activity of crude extract of *Cymbopogon citratus*. XXXIV Annual Conference of Indian association of medical microbiologists, Microcon 2010 held at Kolkata during November 24-28, 2010 Page No. 276
- iv. Apurva Gode, Sahil Kulkarni, Rahul Gosavi, Dr. Mrunal Ghag Sawant, Dr. Saroj Bapna, Dr. Mira Ramaiya and Dr. Abhay Chowdhary. Assesment of invitro anti-malarial potential of extracts of *Carica papaya*, *Swertia chirata* and *Punica granatum*. Microcon 2010 Page No. November 26-28, 2010
- v. Akshay Sirsawkar, Amruta Naik, Rahul Gosavi, Sahil Kulkarni, Dr. Mrunal Ghag Sawant, Dr. Saroj Bapna, Dr. Mira Ramaiya and Dr. Abhay Chowdhary. Assesment of the Larvicidal activity of *Plyalthia longifolia* extracts against *Aedes aegypti*. Microcon 2010 Page No. November 26-28, 2010

7. **Conference / Symposium attended**

- i. Attended Science Acadamies Education Programs BIOME Celebrating 2010 as the International; Year of Biodiversity during 6th and 7th October, 2010 held at MGM institute of Research, Navi Mumbai.
- ii. Attended Meeting on Knowledge Management Policy for Health-Service, Education and Research held at NIRRH- Parel on 23rd August 2010.

- iii. XXXIV Annual Conference of Indian association of medical microbiologists, Microcon 2010 held at Kolkata during November 24-28, 2010 Page No. 276.
 - iv. International Symposium on Recent Advances in Ecology and Management of Vectors and Vector Borne Diseases” Organized by Defense Research and Development Establishment (DRDE) Gwalior. 1-3 December, 2010.
 - v. “Xlth Annual conference of Indian academy of Vaccinology and Immunobiology and National Vaccinology Symposium”, Organised by Haffkine Institute for Training Research and Testing, Mumbai. 4 & 5 March 2011.
8. **Workshops organized**
- i. Workshop arranged on “Mission to control Mosquito Menace” for college students at regular interval.
 - ii. Manual prepared for Identification, Collection techniques and control measures of different species of medically important mosquitoes.
 - iii. Workshop on “Principle and Practices of laboratory animal Care” will commence from April 2011.
 - iv. Planning of Short term course on *Medical Entomology* will commence from mid 2011.

TESTING ACTIVITIES:

Sr. No.	Nature of the sample tested and the Test performed	Total number of sample tested	Testing Charges Earned ₹
1	Commercial Insecticide Testing	42	22,19,169/-
2	Leptospirosis Testing	4	Govt. funded

DIVISION OF SNAKE FARM

Visual video demonstration of milking process and conduct a lecture on snakes for Students / Visitors from Allopathic, Ayurvedic, Homeopathic medical colleges, nursing school, senior/junior colleges, school, National and Foreign dignitaries. The total Number of visitors visited during the period 1st April 2010 to 31st March 2011 is as mention below

Date	No. of Visitors
15.04.2010 – 27.04.2010	197
15.05.2010 – 27.05.2010	197
7.06.2010	15
6.07.2010 – 26.07.2010	170
4.08.2010 – 31.08.2010	279
3.09.2010 – 23.09.2010	151
5.10.2010 – 29.10.2010	591
3.11.2010 – 29.11.2010	296
8.12.2010 – 24.12.2010	415
19.01.2011	50
1.02.2011 – 28.02.2011	381
4.03.2011 – 25.02.2011	198
Total	2940

Anti Rodent testing on Indian sample. Total 12 sample analyzed which is cost around ₹ 2, 64,000 during period 3.8.2010 – 1.9.2010.

In the year 2010-1011, six snake survey for preventive measures to tackle snake menace were done generating income of ₹ 30,000/-.

STATEMENT OF VENOM PRODUCTION AND SUPPLY DURING YEAR APRIL 2010 TO MARCH 2011

SNAKE AND SCORPION	OPENING STOCK (gm)	PRODUCTION (gm)		SUPPLY (gm)		CLOSING STOCK (gm)	TOTAL VALUE (₹)
		gms	Rates	gms	Gift		
COBRA	145.75	1	10,000	2.5	-	143.26	14,32,600
R. VIPER	22.625	1	10,000	0.11	-	22.515	225150
KRAIT	0.04	1	14,000	-	-	0.04	560
ECHIS	17.87	1	14,000	-	-	17.87	250180
RED SCORPION	16.313	1	14,000	0.4	-	15.913	222782
OLD DEAD COBRA	NOT WEIGHTED 680 AMPULES	-	-	-	-	-	-

DEPARTMENT OF BACTERIOLOGY

TRAINING ACTIVITIES

Imparted training to three external students on anti-microbial efficacy testing of disinfectant sample.

RESEARCH ACTIVITIES

1. Investigated the anti-fungal & anti-bacterial properties of synthetic compounds and herbal formulations developed by various departments of this Institute and outside academic institutes.
2. **Research papers published**
 - i. "Synthesis and Anti-microbial activity of Phenyl thiouredosulfonamide benzothiozoles". Indian Journal of Heterocyclic Chemistry, 19 (2010), 299.
 - ii. Anti-fungal effects of *Tinospora Cordifolia* (Stem) and *Punica Granatum* (Peel) against *Aspergillus niger*. Shrikant Gajbhiye, Pratibha Chaturvedi and Abhay Chowdhary. Bulletin of Haffkine Institute Vol. 13; No.1, January 2011.

TESTING STUDIES

Sr. No.	Nature of the Sample Tested And the Test Performed	Total Number of Samples Tested	Testing Charges Earned (₹)
1.	Water samples (Bacteriological examination of water samples)	82	1,61,000/-
2.	Water Purifiers of all types (Anti-bacterial efficacy and retention of bacteria by water purifiers)	26	1,17,000/-
3.	Disinfectant (Anti-bacterial efficacy of various disinfectant samples)	38	6,64,000/-
4.	Miscellaneous (Lyophilization, Water storage tank, Paint & Microbiological examination of samples, etc.)	11	42,000/-
	Total number of samples tested and total charges earned (in Rupees) during the year April 2010 to March 2011.	133	9,84,000/- (Excluding Service Tax)

Testing of disinfectants also includes the In-vitro anti-tuberculosis efficacy testing of various types of disinfectant samples.

DEPARTMENT OF CHEMOTHERAPY

In the year 2010-11, three students have completed their project for M.Sc. degree [by Research] from Mumbai University.

RESEARCH ACTIVITIES

1. *Ongoing research projects*

- i. Synthesis and study of heterocyclic compound as a possible Anti-microbial agents.
- ii. Synthesis and study of heterocyclic compound as a possible therapeutic agents.

2. *Short Term Research Internship Projects*

- i. Synthesis of unsaturated Cinnamic acid by using Knoevenagel reaction and characterize the product by spectral analysis.
- ii. Synthesis of 4-(P-chlorophenoxy)-3-chlorophenyl, substituted phenyl thiocarbanilide.

3. *Research papers published*

- i. Vrushali N.Patil, Ameya G.Yadav, A.S.Bobade*, S.V.Athlekar, L.S.Patil and Abhay Chowdhary. 'Synthesis and evaluation of new Benzothiazole derivatives as potential Anti-Microbial agents'. Research Journal in Pharmaceutical Chemistry, Vol. 3(2), March-April 2010.
- ii. Y.P.Jadhav, K.H.Dawane, S.V.Athlekar, L. S. Patil, A. S. Bobade, A. S.Chowdhary. "Synthesis and biological activity of some Cinnolinothiazole derivatives" Indian Journal of Heterocyclic Chemistry, 19; 2010: 419-420.
- iii. Y.S. Rane, S.V. Athlekar, L.S. Patil, A.S. Bobade, A.S. Chowdhary, "synthesis and biological activity of 5-substituted and 5,6-disubstituted -2-phenoxyethyl Benzimidazole" Indian Journal of Heterocyclic Chemistry, 19; 2010: 345-348.
- iv. Y P Jadhav, K H Dawane, V N Patil, A S Bobade, S V Athlekar, A S Chowdhary "Synthesis and Biological Evaluation of New Pyridine Derivatives" Asian Journal of Research in Chemistry 3; 2010: 955-957.

- v. Y P. Jadhav, R R Varma, V N Patil A S Bobade, S V Athlekar, A S Chowdhary "Synthesis and Study of some 1,2,4-Triazole derivatives" Research Journal of Pharmacy and Technology 3; 2010: 1144-1147.
- vi. RR Varma, SV Athlekar, LS Patil, AS Bobade, AS Chowdhary, "Synthesis and Anti-microbial activity of sulfonamido benzothiazoles having benzamide moiety" Indian Journal of Heterocyclic Chemistry, 19; 2010: 245.
- vii. AV Mayekar, SV Athlekar, LS Patil, AS Bobade, AS Chowdhary, "Synthesis and Anti-microbial activity of phenyl urea and phenyl thiourea derivatives from 4-amino antipyrine" Indian Journal of Heterocyclic Chemistry, 19; 2010: 297.
- viii. RR Varma, SV Athlekar, LS Patil, SP Gajbhiye, AS Bobade, AS Chowdhary, "Synthesis and Anti-microbial activity of phenyl thioiuredosulfonamido benzothiazoles" Indian Journal of Heterocyclic Chemistry, 19; 2010: 299
- ix. VN Patil, AG Yadav, AL Asrondkar, AS Bobade, SP Gajbhiye, AS Chowdhary "Synthesis of substituted-Benzoic acid (1-(1-Benzothiazol-2-yl-3-(substituted Phenyl) 1H pyrazol-4-Yl) Meth-(E)-Hydrazide as possible Anti-Microbial Agents" Bulletin of Haffkine Institute 13; Jan 2011.

4. **Conference / Symposium attended**

- i. Ashish L Asrondkar*, Vrushali N Patil, Anil S Bobade, Abhay S Chowdhary "Synthesis and biological activity of 3-(6-Chloro-benzothiazol-2-ylamino)-2- (Substituted Phenyl)-thiazolidin-4-one" "National Seminar on Modern Trends in Organic Synthesis", Department of Chemistry Shri. Baldev P. G. College at Varanasi between 25th to 26th September, 2010.
- ii. VN Patil*, AL Asrondkar, Bobade Anil S., Chowdhary Abhay S. "Synthesis of sub (5-(2, 4, 6-trichlorophenoxy methyl)-2-(sub thiocarbamoyl)-1, 3, 4-oxadiazole as potential chemotherapeutic agents". "National Seminar On Modern Trends in Organic Synthesis", Department of Chemistry Shri. Baldev P. G. College at Varanasi between 25th to 26th September, 2010.

- iii. VN Patil*, Y P Jadhav, A.S. Bobade, A.S. Chowdhary.
"Synthesis and evaluation of some new Benzofuran Derivatives"
"XXXIV Annual conference of Indian Association of Medical Microbiologists MICROCON 2010" at Swabhumi Kolkata between 24-28 November 2010.
- iv. AL Asrondkar*, VN Patil, Y P Jadhav, K H Dawane, AS Bobade, AS Chowdhary "Triazole having azomethine linkage as a potential Antimicrobial Agents" "XXXIV Annual conference of Indian Association of Medical Microbiologists MICROCON 2010" at Swabhumi Kolkata between 24-28 November 2010.
- v. PHChavan*, A.G. Yadav, V.N. Patil, A.S. Bobade, A.S. Chowdhary
"Antimicrobial activity of synthesized Organic molecules consisting Benzothiazole Moiety". "XXXIV Annual conference of Indian Association of Medical Microbiologists MICROCON 2010" at Swabhumi Kolkata between 24-28 November 2010.
- vi. P.V. Ansulkar, A.A. Naik, A.G. Yadav, Y.N. Patil, A. S. Bobade, A. S. Chowdhary "Estimation of antioxidant activity of Benzothiazole derivatives" National Conference on oxidative stress & its complications in human health. Held at Coimbatore (Tamilnadu) Between 19 to 28 January 2011.
- vii. VN Patil*, AL Asrondkar, AS Bobade, AS Chowdhary "Synthesis and antimicrobial evaluation of some new 5-(2-furyl)-thieno [2, 3-d] pyrimidin-4(3H)-ones derivatives. "National Seminar on Advances of chemistry in last few decades and contribution of chemical research to the mankind" Department of Chemistry Shri. Baldev P. G. College at Varanasi between 29th to 30th January, 2011.
- viii. AL Asrondkar*, VN Patil, AG Yadav, AA Naik, PV Ansulkar, AS Bobade, AS Chowdhary "Anti-Oxidant and Anti-Bacterial activity of Pyrazoyl-Benzothiazole by using Vilsmeier Haack Reaction" "National Seminar on Advances of chemistry in last few decades and contribution of chemical research to the Mankind" Department of Chemistry Shri. Baldev P. G. College at Varanasi between 29th to 30th January, 2011.

CHEMICAL TESTING UNIT

Prime function of the Testing unit is to conduct various tests on samples submitted by State Excise Department of the Government of Maharashtra.

AIMS AND OBJECTIVES

1. To analyse the Alcoholic Beverages like Indian Made Foreign Liquors (I.M.F.L) , Beer, Toddy, Country liquor, etc.
2. To analyse the Denaturants (such as Benzene, Acetone, Crotonaldehyde, Diethylphthalate, Ethyl-Ether, Light Caoutchoucine, Pyridine base, Toluene, Diethylamine), Bitterants(Denatonium Sachharide & Denatonium Benzoate), Colourants(Crystal Violet & Methelene Blue) to be added for preparing Ordinary Denatured Spirit (O.D.S.) and Special Denatured Spirit (S.D.S.) sent by State Government of Maharashtra.
3. To analyse the samples of Special Denaturant Spirit (S.D.S) , Ordinary Denatured Spirit (O.D.S.) , French Polish , Thinner, Ganja, Bhang etc. sent by State Government of Maharashtra.
4. To extend the expertise to State Excise Department of the Government of Maharashtra in respect of above referred activities.

Sr. No.	Type of Sample	Number of Sample Received	Testing Charges Received (₹)
1.	CL – I	15,966	23,94,900/-
2.	CL – III	5618	11,23,600/-
3.	TDL	3665	36,65,000/-
4.	TPE	3165	12,66,000/-
5.	I.M.F.L./TL	4864	14,59,200/-
6.	TCL	35	27,500/-
7.	TFS	04	1,600/-
8.	TAC	126	1,26,000/-
	Total	34,912	1,00,63,800/-

DEPARTMENT OF VIROLOGY

TRAINING ACTIVITIES

The following staff members of the department were recognized guiding teachers at the University of Mumbai for the respective degrees and subjects mention below during the period of reporting.

Sr. No.	Name of the Guiding Teacher	Degree & Subject for which Recognized	Affiliating University	Total Number of Students registered as on 31.03.2011
1.	Dr. Abhay Chowdhary	M.Sc. & Ph.D. in Microbiology & Applied Biology	Mumbai	M. Sc (02) Ph. D (01)
		Ph. D Medical Microbiology	MUHS	Ph. D (06)
2.	Dr. (Mrs.) R. A. Deshmukh	M.Sc. & Ph.D. in Microbiology & Applied Biology	Mumbai	Ph. D (01)
		Ph. D Medical Microbiology	MUHS	Ph. D (04)

1. The Annual Biotechnology Training Program was conducted in 6 batches from 5th April 2010 until 2nd July 2010. Two Hundred Seventy Two (272) B. Sc, M. Sc and B. Tech Students were enrolled and a total revenue of Rs. 5, 44,000/- was generated.
2. The Department also conducted "Viro-Vitals", Annual Course in Medical Virology for M.Sc and M.D. Students of University of Mumbai and Maharashtra University of Health Sciences, from 27th January 2011 until 1st March 2011. Twenty Seven candidates were enrolled and a revenue of Rs. 81,000/- was generated.
3. Three Students pursuing B. Tech degree under Padmashree Dr. D. Y. Patil University completed their Short Term Research Internship Program in June 2010. One B. Tech Student from Padmashree Dr. D. Y. Patil University and One M. Sc Medical Biotechnology student from MGM College, Navi Mumbai were enrolled under the Short Term Research Internship Program in January 2011.
4. Training programs and workshops attended:
 - i. Mr. Ritwik Dahake, Scientific Officer, Department of Virology, attended a workshop on 'Communication and Presentation Skills for Scientists

at the 'Xavier Institute of Management, Bhubaneswar (Sponsored by Dept. of Science & Technology) from 6–11 September 2010.

- ii. Mr. Ritwik Dahake, Scientific Officer, Department of Virology, attended a workshop on Good Clinical Laboratory Practices (GCLP) organized by YRG Care, Chennai from 18–20 June 2010.
- iii. Ms. Devanshi Gohil, Senior Research Fellow and Ms. Shweta Sawant, Senior Technical Assistant, Department of Virology, attended the National Hands on workshop on Molecular Viral Diagnosis, from 23 – 34 October 2010, at Centre for Viral Research, Manipal Medical University.
- iv. Mr. Sandeepan Mukherjee, Scientific Officer, Department of Virology, attended and successfully completed a training course on "Radiological Safety Aspects in the Research Applications of Ionizing Radiation" from 20 – 28 December 2010, organized by the Radiological Physics & Advisory Division, BARC, Mumbai.
- v. Mr. Ritwik Dahake and Mr. Sandeepan Mukherjee, Scientific Officer, Department of Virology, attended a workshop on 'Introduction to Systems Biology and Model Building Using Open Source Pathway Modelers' organized by Cyborg Sapiens Bioinformatica, Mumbai on 23 January 2011.

Students who completed Post Graduate studies

Sr. No	Name of the Students & [Guiding Teacher]	Degree Subject (Year of Passing)	Title of Thesis
1	Suresh Gupta [Dr. (Mrs.) R. A. Deshmukh]	Ph.D. (2010)	Study of Morbidity and Mortality trends in HIV associated Wasting Syndrome
2	Deepak Patil [Dr. (Mrs.) R. A. Deshmukh]	Ph.D. (2010)	Study of Seroprevalence of Leptospirosis using Conventional & Modern Diagnostic tools

RESEARCH ACTIVITIES

1. Post – Graduate Students Research Projects

- i. Study of Drug-Resistant HIV-1 in the patient cohort in Mumbai.
- ii. Study of potential therapeutic activity of Gold Nano Particles against HIV.
- iii. Immunogenicity study of recombinant Dengue Gene Construct in Mice.

- iv. To study the prevalence and characterization of Dengue Virus in and around Mumbai.
- v. Study of Neuronal proteome in prognosis of Rabies in Murine Model.
- vi. Assessment of Neuro-immunopathogenesis of Rabies Virus in Murine Model.
- vii. Molecular characterization of 2009 H1N1 pandemic Influenza and seasonal Influenza Viruses from patients in Mumbai region.
- viii. Study of immune-pathogenic markers in the pathogenesis of Severe Acute Respiratory Illness (SARI).
- ix. Assessment of Plant Proteins/Peptides as potential anti-viral agents.

2. **Short Term Research Internship Projects**

- i. Assessment of Anti-JEV Activity of Eucalyptus spp.
- ii. *In-vitro* assessment of anti-cancer activity of *Avicennia marina*, *Andrographis paniculata* and *Couroupita guianensis*.
- iii. HLA genotyping in normal random population
- iv. HLA DRB association of HIV sero-positive individuals in Mumbai.
- v. HLA association in Diabetic population in Mumbai.

3. **Research papers published**

- i. Deepak Y. Patil and Ranjana Deshmukh. Leptospirosis: A Re-emerging Disease (2011). Bulletin of Haffkine Institute. Vol. 13, No. 1, pp: 7-11.
- ii. Sweta Kothari and Ranjana Deshmukh. Limiting Dilution: A cheaper alternative for detecting Viral Load of Human Immunodeficiency Virus-1 (2011). Bulletin of Haffkine Institute. Vol. 13, No. 1, pp: 12-14.
- iii. Sandeepan Mukherjee, Soumen Roy, Ritwik Dahake and Abhay Chowdhary. In-vitro susceptibility of Influenza Viruses to Adamantadine Hydrochloride (2011). Bulletin of Haffkine Institute. Vol. 13, No. 1, pp: 33-34.

4. **Research papers presented**

The following papers were presented at various National Conferences during the period:

- i. Ritwik Dahake, Dr. Abhay Chowdhary. An Experience with the 2009 Pandemic H1N1 Influenza in Mumbai. Oral presentation at XIth Annual Conference of Indian Association of Vaccinology and Immunobiology

(IAVIB) and National Vaccinology Symposium (VacSym 2011), 5th & 6th March 2011, Haffkine Institute, Mumbai, India.

- ii. Ritwik Dahake, Dr. Abhay Chowdhary. An Experience with the Century's First Pandemic: The 2009 Pandemic H1N1 Influenza in Mumbai. Oral presentation at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- iii. Soumen Roy, Ritwik Dahake, Deepak Patil, Shweta Tawde, Sandeepan Mukherjee, Dr. S. V. Athlekar, Dr. Abhay Chowdhary, Dr. Ranjana Deshmukh. Virological Monitoring of Influenza Viruses in Mumbai for a Period of 2 Years from July 2007–2009. Oral presentation at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- iv. Sandeepan Mukherjee, Devika Gupta, Soumen Roy, Ritwik Dahake, Deepak Patil, Dr. Abhay Chowdhary. Screening of in vitro Anti-Influenza Activity of Extracts of *Avicennia marina* and *Salvadora persica*. Oral presentation at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- v. Deepak Patil, Ritwik Dahake, Dr. Abhay Chowdhary, Dr. R A Deshmukh. Clinico-Epidemiological Study of Leptospirosis. Poster presented at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- vi. Deepak Patil, Devanshi Gohil, Ritwik Dahake, Soumen Roy, Sandeepan Mukherjee, Dr. Abhay Chowdhary, Dr. R A Deshmukh. Study of Seroprevalence of Human Leptospirosis in and around Mumbai. Poster presented at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- vii. Deepak Patil, Kanchan Kathalay, Ritwik Dahake, Soumen Roy, Sandeepan Mukherjee, Dr. Abhay Chowdhary, Dr. R A Deshmukh. Study of Transmission Dynamics of Leptospirosis in and around Mumbai. Poster presented at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- viii. Swapanaja Ghadigaonkar, Shraddha Mehta, Dr. Abhay Chowdhary, Dr. R. A. Deshmukh. Preparation of Rabies Monoclonal Antibodies as a Diagnostic Tool for Rabies Strain Differentiation. Oral presentation at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.
- ix. Dr. Kalpita Mulye, Rahul Chavan, Dr. Abhay Chowdhary, Dr. R. A. Deshmukh. In-vitro study of Indian medicinal plants as potential anti-HIV agents. Poster presented at 'Microcon 2010', 26–28 November 2010; Swabhumi, Kolkata, India.

GUEST LECTURES:

1. Dr. Abhay Chowdhary, Head, Department of Virology & Director, Haffkine Institute, delivered guest lectures at the following scientific meetings during the year 2010–2011.

Sr. No.	Date	Name of the Institution	Guest Lectures delivered / Conferences attended
1.	03.04.2010	Tata Memorial Hospital, Mumbai.	Participated in CME program on "Laboratory Accreditation, an Overview" as a faculty.
2.	15.07.2010	National Institute of Immunohaematology, Mumbai	Delivered lecture on EQAS workshop on "Quality Systems Management for State Reference Laboratories under NACO.
3.	17.07.2010	ESI-PGIMS Model Hospital, Mumbai.	Chief Guest for the CME program and delivered lecture on "Hospital Associated Infection Control"
4.	07.08.2010	S. Nijalingappa Medical College & HSK Hospital & Research Centre, Bagalkot, Karnataka.	Participated in workshop and delivered a lecture on "Basics & Clinical Applications of Electrophoresis and PCR".
5.	17-20.08.2010	M. P. State AIDS Control Society, Bhopal	Participated as a Resource Person for the Workshop on "Laboratory Quality System Essentials for NABL Accreditation" conducted by NACO.
6.	23.09.2010	Federation of Indian Chambers of Commerce & Industry, (FICCI), Mumbai.	Participated in "Interactive workshop on Medical Textiles" and delivered a special address on "Medical Textiles".
7.	25-26.09.2010	Krishna Institute of Medical Sciences University, Karad.	Participated as Guest of honour at MAMICON-2010 Conference and chaired a scientific session.

Sr. No.	Date	Name of the Institution	Guest Lectures delivered / Conferences attended
8.	24.10.2010	Nehru Science Centre, Mumbai.	Participated in Pediatrics Infectious Diseases Conference as a Chairperson and delivered a talk on "Newer Diagnostic Tools for TB, Malaria, Dengue, Typhoid".
9.	08.11.2010	National Institute of Immunohaematology, Mumbai.	Participated in EQAS workshop "Quality Systems Management for State Reference Laboratories (NACO) and delivered a talk on "Going for Accreditation"
10.	15.11.2010	Swami Ramanand Teerth Marathwada University, Nanded.	Participated as 'Chief Guest' on the occasion of 'Biotechnology Day celebrations and delivered key note lecture.
11.	24-28.11.2010	XXXIV th Annual National Conference of IAMM, Kolkata.	Delivered Presidential oration on "Quality in Clinical Microbiology".
12.	21.12.2010	Thakur College of Science & Commerce, Mumbai.	Participated as the Chief guest for "KAOS-2010" an Inter Collegiate Biotech Festival and delivered key note lecture.
13.	24.02.2011	Ministry of Science & Technology, Indian National Science Academy, New Delhi.	Presentation on project titled "Mechanism based screening and validation of important Ayurvedic herbal drugs using radiotracer techniques".
14.	5-6.03.2011	Haffkine Institute, Mumbai.	Organized XI th Annual Conference of the Indian Academy of Vaccinology & Immunology (IAVIB) and National Vaccinology Symposium (VACSYM 2011) and delivered lecture on "Vaccines in India".
15.	13.03.2011	National Integrated Medical Association, Mumbai.	Participated in Seminar on "Integrated Medicine Update 2011" as 'Guest of Honour' and delivered key note address.

2. Dr. Sweta Kothari, Sr. Scientific Officer, Department of Virology, was invited as an external examiner for M. Tech (Biotechnology, III semester - Animal Tissue Culture & Molecular Biology) practical on 29th November 2010, 1st December 2010 and 3rd December 2010.
3. Mr. Ritwik Dahake, Scientific Officer, Department of Virology delivered Guest Lecture at the following meetings during the year 2010–2011

Sr. No.	Date	Name of the Institution	Lecture Topic	Event
1	06.03.2011	Haffkine Institute, Mumbai	An Experience with the 2009 Pandemic H1N1 In uenza in Mumbai	XI th Annual Conference of Indian Association of Vaccinology and Immunobiology (IAVIB) and National Vaccinology Symposium (VacSym 2011)

4. Mr. Sandeepan Mukherjee, Scientific Officer, Department of Virology delivered Guest Lectures at the following meetings during the year 2010–2011

Sr. No.	Date	Name of the Institution	Lecture Topic	Event
1	24.08.2010	Thakur College, Kandivili, Mumbai	Vaccines: Past, Present & Future	Guest Lecture
2	04.09.2010	Mumbai College, Wadala, Mumbai	Biotechnology: Nature & Scope	BIOLUSION – Biotech. Festival
3	30.10.2010	Pad. Dr. D. Y. Patil University, Navi Mumbai	In uenza Virus: Types, Evolution & Anti Virals	Guest Lecture
4	11.02.2011	Pad. Dr. D. Y. Patil University, Navi Mumbai	Viruses: Emergence & Evolution	SPECIES 2011 – Annual Festival

5. Mr. Sandeepan Mukherjee was invited as a Guest Lecturer at the following institutions:

Sr. No.	Name of the Institution	Lecture Topic	Academic Group
1	Birla College, Kalyan	Bioinformatics	M. Sc (I), Bio-analytical Sciences
2	MVLU College, Andheri, Mumbai	Bioinformatics	T. Y. B. Sc, Microbiology & Biotechnology
3	B. N. Bandodkar College, Thane	Bioinformatics	T. Y. B. Sc, Microbiology & Biotechnology

TESTING ACTIVITIES

Sr. No.	Name of the Test	Total Test	Testing Charges (₹)
1	H1N1 Testing	944	Free
2	Specialized Testing	04	4,20,000/-

ACHIEVEMENTS

1. The Department of Virology, organized a Day long symposium “Rabies: Facts & the Phobia” on 28th September 2010 to commemorate World rabies Day.
2. Dr. Abhay Chowdhary, Director and Head, Department of Virology, delivered the Presidential Oration at ‘Microcon 2010’, the Annual National Conference of Indian Association of Medical Microbiologists (IAMM) in November 2010.
3. Ms. Shraddha Mehta, Senior Research Fellow, Department of Virology, received the Best Paper Prize in Immunology at ‘Microcon 2010’, the Annual National Conference of Indian Association of Medical Microbiologists (IAMM) in November 2010.
4. The Department of Virology, organized a symposium “All Aids for AIDS” on 2nd December 2010 to commemorate World AIDS Day.
5. The Department of Virology, organized Organized the ‘XIth Annual Conference of Indian Association of Vaccinology and Immunobiology (IAVIB) and National Vaccinology Symposium (VacSym 2011)’ from 5 – 6 March 2011.

DEPARTMENT OF CLINICAL PATHOLOGY

TRAINING ACTIVITIES

1. The Department of Clinical Pathology participates in “Annual Biotechnology Training (ABT)” Program.
2. The Department also participates in “Viro Vitals” conducted course.
3. Training programs and workshops attended:
 - i. Mr. Arunagiri Subramanian attended a training program for 15 days on “Molecular characterization of Methicillin Resistant *Staphylococcus aureus* (MRSA) isolates” and workshop on “Isolation and Identification of *Streptococcus pneumonia* and *Haemophilus influenzae*” for 3 days at Christian Medical College (CMC), Vellore, Tamil Nadu, India.
 - ii. Ms. Suvarna Joshi Attended a training program for 15 days on “Liquid Culturing MGIT and Molecular Detection of Tuberculosis” at Hinduja Hospital, Mumbai, India.
 - iii. Ms. Suvarna Joshi Attended a training program for 10 days on “Molecular Diagnosis of Tuberculosis (Line probe assay)” at Vishakha Clinical Microbiology Laboratory, Nagpur, India.

RESEARCH ACTIVITIES

1. **Post – Graduate Students Research Projects**
 - i. Assessment of novel molecular methods for the diagnosis of Tuberculosis.
 - ii. Molecular characterization of Methicillin Resistant *Staphylococcus aureus* (MRSA) isolates in Mumbai.
 - iii. Assessment of Antimicrobial and Anti-quorum sensing activity of Actinomycete bacteria
2. **Short Term Research Internship Projects**
 - i. Antifungal and Anti-TB compounds from Actinomycetes.
 - ii. Assessment of cytotoxic, Anti-cancer and Antimicrobial activity of marine Cyanobacteria.

3. **Research papers published**

- i. Evaluation of In Vitro Anti- Tuberculosis Activity of Extracts of *Asparagus racemosus*, *Solanum surattense*, *Cinnamomum verum*. Author: Suvarna Joshi, Forum Shah, Pooja Bansod, Swati Vaish, Soumen Roy, Shrikant Athlekar, Abhay Chowdhary. Bulletin of Haffkine Institute, Vol.13 – No 1; January, 2011.

4. **Research papers presented**

- i. Evaluation of In Vitro Anti- Tuberculosis Activity of Extracts of *Asparagus racemosus*, *Solanum surattense*, *Cinnamomum verum*. Author: Suvarna Joshi, Forum Shah, Pooja Bansod, Swati Vaish, Soumen Roy, Shrikant Athlekar, Abhay Chowdhary. Presented at: XXXIV National Conference of Indian Association of Medical Microbiologists (IAMM) MICROCON 2010 Swabhami, Kolkata.

5. **Achievements**

- i. Symposium on World Tuberculosis Day 24th March 2011 on “TUBERCULOSIS: RECENT ADVANCES” was organized under the guidance of Dr. S. P. Vaidya, Assistant Director, Department of Clinical Pathology.

TESTING ACTIVITIES

The department receives clinical specimens from various hospitals and general nursing homes for routine investigations. The services offered cover the following areas:

1. Diagnostic bacteriology and serology.
2. Antimicrobial testing of commercial synthetic compounds.
3. Diagnostic Mycology.
4. Routine haematological examination.
5. Urine routine and microscopy.
6. Routine stool and microscopy.

7. Peripheral smear for malarial parasites.
8. Histopathological examination of surgical specimens and biopsies.
9. Cytology of various body fluids.
10. Testing of Operation Theatre (OT) swabs.

Samples Received From Hospitals

SR. NO.	NAME OF THE TEST	TOTAL NO. OF TESTS	TOTAL CHARGES (₹)
1.	ANTIBIOTIC SEN.	$(0) + 17 = 17$	1,700/-
2.	BLOOD CULTURE	$(0) + 6 = 6$	600/-
3.	BLOOD ESR	$(10) + 8 = 18$	80/-
4.	BLOOD M.P	$(9) + 7 = 16$	140/-
5.	BRUCELLA	$(0) + 190 = 190$	19,000/-
6.	DIFFERENTIAL COUNT	$(16) + 12 = 28$	120/-
7.	FLUIDS WITH PUS	$(0) + 1 = 1$	100/-
8.	HAEMOGLOBIN	$(16) + 12 = 28$	120/-
9.	PUS CULTURE	$(0) + 10 = 10$	1,000/-
10.	SPUTUM CULTURE	$(0) + 2 = 2$	200/-
11.	STOOL CULTURE	$(0) + 3 = 3$	300/-
12.	OT CULTURE	$(0) + 830 = 830$	83,000/-
13.	THROAT SWAB	$(0) + 1 = 1$	100/-
14.	TOTAL RBC COUNT	$(16) + 12 = 28$	120/-
15.	TOTAL WBC COUNT	$(16) + 12 = 28$	120/-
16.	URINE CULTURE	$(0) + 12 = 12$	1,200/-
17.	URINE ROUTINE	$(9) + 10 = 19$	300/-
18.	WEIL FELIX	$(0) + 188 = 188$	18,800
19.	WIDAL	$(6) + 183 = 189$	18,900/-
20.	TOTAL TESTS	1,614	-
21.	TOTAL INCOME	-	1,45,900/-

**Note: Figures in brackets indicate free test*

DEPARTMENT OF BIOCHEMISTRY

TRAINING ACTIVITIES

1. Training provided to students on Soxhlet Apparatus and phytochemical analysis of plant extracts.
2. Department also participates in Annual Biotechnology Training Program.

RESEARCH ACTIVITIES

1. ***Post – Graduate Students Research Projects***

- i. Study of Biochemical parameters in HIV- TB co-infection.

2. ***Short Term Research Internship Projects***

- i. Screening of Antioxidant and antimicrobial activity of plant extracts.

3. ***Ongoing projects***

- i. Screening of antioxidant activity of Bezothiozole derivatives.
- ii. Estimation of Antioxidant activity of Suvarna raj vangeswar.

4. ***Research papers published***

- i. Study of Hepatoprotective activity of *Cymbopogon Citratus* against Hepatotoxicity induced by carbon tetrachloride in female Wistar rats, Bulletin of Haffkine institute, Jan 2011, vol.13-No.1. Monu Ojha , Pushkar Athalekar ,Amruta A. Naik, P. V. Ansulkar, Mrunal Ghag, Sandeepan Mukharjee, and Abhay Chowdhary,

5. ***Research papers presented***

- i. Antioxidant activity of crude extracts of *anethum sowa* seeds.” (Poster was presented in NCOSH 2011 at Coimbatore in Jan 2011.) Pushkar Athalekar, Monu Ojha, Pallavi Ansulkar, Amruta Naik, Dr. Abhay Chowdhary.
- ii. “Estimation of antioxidant activity of bezothiozole derivatives.” (Poster was presented in NCOSH 2011 at Coimbatore in Jan 2011.) Amruta A. Naik, P. V. Ansulkar, A. S. Chowdhary, A. G. Yadav, V. N. Patil, A. S. Bobade
- iii. “Assessment of Larvicidal activity of *polyalthea logifolia* extract against *aedes aegypti*.” (Poster was presented in MICROCON 2010 at Kolkata in Nov 2010.) Akshay S. , Amruta N. , Rahul G., Sahil K., Saroj B., Mira R., Dr. Abhay Chowdhary

- iv. "Evaluation of antibacterial activity of two medicinal plants on E.coli & S.aureus." (Poster was presented in MICROCON 2010 at Kolkata in Nov 2010.) Joel Selvraj, Priyanka Mohakar, A. Subramanian, Shreewardhan Rajopadhaye, Dr. Abhay Chowdhary.

6. **Conference / Symposium attended**

- i. ACBICON-2011 at G.S. Medical College.
- ii. International symposium on Diabetes- 2011, Lilavati hospital.
- iii. International conference on HIV /AIDS Feb 2011, Mumbai.

TESTING ACTIVITIES

1. Standardization of new 14 Human biochemical parameters on semi-automated analyzer.
2. Standardization of new 18 Animal biochemical parameters on semi-automated analyzer.
3. Samples tested in department of Biochemistry from 1st April 2010 to 31st March 2011.

Sr. No.	Nature of the sample tested and the Test performed	Total number of sample tested	Testing Charges Earned (₹)	No. of samples Tested institutional employees
1	Urine stone Analysis	71	14200	-
2	Blood glucose	14	1120	15
3	Serum Cholesterol	15	1200	4
4	Serum Triglyceride	13	1300	3
5	HDL	9	720	3
6	Serum Bilirubin	1	80	1
7	SGOT	2	160	4
8	SGPT	2	160	4
9	Uric Acid	3	240	3
10	Blood Urea Nitrogen	--	--	4
11	Creatinine	--	--	4
Total		130	19,180/-	45

Total Income from testing and Sponsored Research Activities: A total income of Rs. 19,180/- was earned by the department of biochemistry during the period of 1st April 2010 to 31st March 2011.

DEPARTMENT OF TOXICOLOGY

The Department of Toxicology was actively engaged in toxicity testing of commercial samples referred by various industries and institutes, Department also involve in short term training and research projects. The samples for toxicity testing included drugs and related products, cosmetics, chemicals. The details of the tests undertaken are shown as below.

Appendix I

Sr. No.	Type of test	No. of sample tested	Charges (₹)
1	Acute oral toxicity in mice	4	80,000
2	Primary skin irritation in rabbits	5	50,000
3	Mucus membrane irritation in rabbits	4	40,000
4	Intracutaneous sensitization in guinea pigs	1	7000
5	Oral LD50 in Rat	1	50,000
6	Dermal LD50 in Rabbits	1	50,000
	Total test	16	
	Total charges	₹ 2,77,000/-	

Appendix II

A) Acute toxicity in mice

Name of the sample	Route	Results			Charges (₹)
		Lower Limit mg/kg	LD50 mg/kg	Higher Limit mg/kg	
NUKOTE ST	Oral		> 50 ml/kg		20,000
Water Sample	Oral		> 50 ml/kg		20,000
Poly Aluminum chloride	Oral		Under process		20,000
Poly Aluminum chloride	Oral		Under process		20,000

B) Primary skin irritation in Rabbits

Name of the sample	Results	Charges (₹)
Go clean	Mild Irritation	10,000
Ecosterile	No Irritation	10,000
Twine Oxide	No Irritation	10,000
Poly Aluminum chloride	Under process	10,000
Poly Aluminum chloride	Under process	10,000

C) Mucous membrane irritation in Rabbits

Name of the sample	Results	Charges (₹)
Ecosterile	No Irritation	10,000
Twine Oxide	No Irritation	10,000
Poly Aluminum chloride	Under process	10,000
Poly Aluminum chloride	Under process	10,000

D) Intracutaneous sensitization in guinea pigs

Name of the sample	Results	Charges (₹)
Twine Oxide	No sensitization	7,000

E) Oral LD50 in Rats

Name of the sample	Route	Results			Charges (₹)
		Lower Limit mg/kg	LD50 mg/kg	Higher Limit mg/kg	
Twin Oxide	Oral	244mg/kg	360mg/kg	530mg/kg	50,000

F) Dermal LD50 in Rabbits

Name of the sample	Results	Charges (₹)
Twine Oxide	>10gm/kg	50,000

THE LIBRARY

The aim and objective of the Haffkine Institute Library is to collect, organize, search and retrieve information in the areas of prime activities of the institute i.e. Biomedical and allied subjects with a special reference to the communicable diseases.

The library added 21 new books in the various fields of research. With this, the total collection of library has grown to 10557 books and 27161 back volumes of journals.

The library continued to provide online scientific search and retrieval facilities to the staff and students. Considering the need and urgency of the requirement, the library continued to deliver documents by post/courier to the distant users who could not come to the library.

The library made available different publications from other libraries to the scientists and students of the Haffkine Institute for 20 times on the basis of Inter Library Cooperation. Similarly, 15 publications available in our library were made available to other libraries in the current year.

The library regularly imparted induction and orientation training to outside visitors and new students of the institute on the library usage and how to conduct the literature search effectively. The library actively took part in the redesigning of the website of the institute and also contributed towards the revival of the Bulletin of Haffkine Institute.

HAFFKINE INSTITUTE FOR TRAINING, RESEARCH AND TESTING

LIBRARY: 2010 - 2011

YEAR	2010-11
Books Added	21
Journals Bound	200
Total Titles	10557
Total Bound Volumes of Journals	27161
Inter-Library Cooperation:	
Loaned Out	15
Borrowed In	20
Number of Times the Library Collection Consulted by Users :	
Outside Visitors	1203
Staff & Students of the Institute	751

Appendix I

LIST OF RECOGNISED POST-GRADUATE TEACHERS & TEACHING FACULTY

Sr. No.	Name	Designation	Course recognized for	Subjects	University
1.	Dr.A. S. Chowdhary M.D.,DHA,DM Virology, FIMSA	Director	M.Sc., Ph.D. Ph.D.	Microbiology Appl.Biology Microbiology Appl.Biology Medical Microbiology	Mumbai University “ “ “ MUHS
2.	Shri. L. S. Patil M.Sc., D.M.L.T., D.B.M.	Assistant Director	M.Sc.	Organic Chemistry	Mumbai University
3.	Dr. S. V. Athlekar M.Sc., Ph.D.	Sr. Scientific Officer & I/C Training	M.Sc.	Microbiology	Mumbai University
4.	Dr. A. S. Bobade M.Sc., Ph.D.	Sr. Scientific Officer	M.Sc., Ph.D	Organic Chemistry	Mumbai University
5.	Dr. Smt. R. A. Deshmukh M.D., Ph.D.	Visiting Scientist & Adjunct Professor (1.8.2008 to 31.07.2012)			
6.	Dr. H. S. Palep M.D.	Visiting Scientist & Adjunct Professor (1.07.2010 to 30.06.12)			
7.	Dr. Smt. Mrudula A. Phadke MD, DCH, FIAP, MR.CP (UK) FRCPH (Hon), MNAMS	Visiting Scientist & Adjunct Professor (23.12.2009 to 22.12.2012)			
8.	Dr. Smt. Usha Sharma MD (Pharmacology), Ph.D. Medicine	Visiting Scientist & Adjunct Professor (1.10.2009 to 30.09.2010)			
9.	Dr. Smt. Jaya R. Deshpande M.D.	Visiting Scientist & Adjunct Professor (1.03.11 to 29.02.12)			

Sr. No.	Name	Designation	Course recognized for	Subjects	University
10.	Dr. Smt. S. D. Deshpande M.Sc., Ph.D.	Visiting Scientist & Adjunct Professor (1.11.2010 to 31.10.11)			
11.	Dr. Rajas Warke M. Pharm., Ph.D. (Biomedical Scie.)	Visiting Scientist & Adjunct Professor (1.08.2009 to 31.07.2012)			
12.	Dr. Smt. Pratibha Chaturvedi Ph.D. (Botany)	Woman Scientist Fellowship (Dept. Of Science & Technology)			

Appendix II

List of students registered for M.Sc./Ph.D.

Sr. No.	Name of student	Subject	Degree	Year of Registration
1.	Ms. Shraddha Mehta	Med. Microbiology	Ph.D.	2010
2.	Mr. Sahil Kulkarni	Med. Microbiology	Ph.D.	2010
3.	Ms. Suvarna Joshi	Med. Microbiology	Ph.D.	2010
4.	Mr. Rahul Gosavi	Med. Microbiology	Ph.D.	2010
5.	Ms. Devanshi Gohil	Med. Microbiology	Ph.D.	2010
6.	Mr. Arunagiri Subramanian	Med. Microbiology	Ph.D.	2010
7.	Ms. Ajit Kulkarni	Med. Microbiology	Ph.D.	2010
8.	Mr. Rohan Kesarkar	Med. Microbiology	Ph.D.	2010
9.	Mr. Sandeepan Mukherjee	Med. Microbiology	Ph.D.	2010
10.	Mr. Shreewardhan Rajopadhye	Med. Biochemistry	Ph.D.	2011
11.	Mr. Shrikanth Gajbiye	Med. Microbiology	Ph.D.	2010

Appendix III

List of students who obtained M.Sc/Ph.D.

Sr. No.	Name of student	Subject	Degree	Year of Passing
1.	Dr. Suresh Gupta	Microbiology	Ph.D.	April 2010
2.	Dr. Deepak Patil	Microbiology	Ph.D.	December 2010
3.	Mr. Soumen Roy	Microbiology	M.Sc.	February 2011



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