



हाफकिन इन्स्टिट्यूट
वैद्यार्थी प्राणी प्रयोगशाला
१९६८

2012 ANNUAL REPORT

Haafkine Institute for Training, Research & Testing

An Autonomous Institute of Govt. of Maharashtra Registered under Societies Registration Act 1860

Recognised as "Scientific & Industrial Research Organisation" (SIRO) by Govt. of India, Ministry of Science & Technology.



INTERNATIONAL WORKSHOP ON ANTIMICROBIAL RESISTANCE

11th - 13th November 2011.





HAFFKINE INSTITUTE FOR TRAINING, RESEARCH AND TESTING

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HAFFKINE INSTITUTE FOR TRAINING, RESEARCH AND TESTING

GOVERNING COUNCIL

PRESIDENT

Dr. Vijaykumar Gavit

Hon. Minister for Medical Education,
Government of Maharashtra,
Mantralaya, Mumbai-32.

VICE PRESIDENT

Shri D.P. Sawant

Hon. Minister of State for Medical Education,
Government of Maharashtra,
Mantralaya, Mumbai-32.

Members

Shri. I. S. Chahal, IAS

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

Shri. Mahesh Zagade, IAS

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

Dr. Jagdish Prasad

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

Dr. Pravin H. Shingare

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

Member Secretary

Dr. Abhay S. Chowdhary

Director, Haffkine Institute
for Training, Research & Testing,
Parel, Mumbai-12.

ADVISORY COUNCIL FOR RESEARCH

- | | | |
|-----|---|-----------------|
| 1. | Dr. R. D. Lele
Director, Dept of Nuclear Medicine,
Jaslok Hospital, Mumbai – 400 026. | Chairman |
| 2. | Dr. (Mrs.) Mrudula A. Phadke
Former Vice Chancellor, MUHS, Nashik
Former Director of Medical, Education & Research,
Govt of Maharashtra, Visiting Scientist & Adjunct Professor,
Haffkine Institute. | Member |
| 3. | Dr. (Mrs.) Nilima Kshirsagar
Director, ESIS Mahatma Gandhi Memorial Hospital
Parel, Mumbai – 400 012. | Member |
| 4. | Dr. D. S. Dakhure
Director, Directorate of Health Services,
Govt. of Maharashtra, Arogya Bhavan, Mumbai – 400 001. | Member |
| 5. | Dr. Pravin H. Shingare
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 - 400 012. | Member |
| 10. | Dr. S.P. Vaidya
Asst. Director, Department of Clinical Pathology
Haffkine Institute for Training, Research & Testing,
Parel, Mumbai- 400 012. | Convener |

EXECUTIVE COMMITTEE (ADMINISTRATION)

- | | |
|---|-------------------------|
| 1. Dr. Abhay S. Chowdhary
Director, Haffkine Institute for Training,
Research & Testing, Parel, Mumbai-12. | Chairman |
| 2. Dr. S. P. Vaidya
Asst. Director,
Department of Clinical Pathology
Haffkine Institute for Training,
Research & Testing,
Parel, Mumbai-12. | Member |
| 3. Shri S.P. Gajbhiye
Senior Scientific Officer,
Department of Bacteriology,
Haffkine Institute for Training,
Research & Testing,
Parel, Mumbai-12. | Member |
| 4. Dr. S.T. Kothari
Senior Scientific Officer,
Department of Virology,
Haffkine Institute for Training,
Research & Testing,
Parel, Mumbai-12. | Member |
| 5. President, Shramik Utkarsha Sabha
(Workers' Union Representative) | Member |
| 6. Shri. D. B. Malekar
Chief Administrative Officer
Haffkine Institute for Training,
Research & Testing,
Parel, Mumbai-12. | 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.

Scientific Officer

Shri. Sandeepan Mukherjee, M.Sc.

BIOCHEMISTRY

Assistant Director

Dr. R. Merita, M.Sc., M.Phil., Ph.D. (w.e.f. 1/3/2012)

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., Dip Public Health, M.H.R.D.M, Ph.D,

Senior Scientific Officer

Dr. S. V. Athlekar, M.Sc, Ph.D. (Retired on 30/06/2011)

Medical Officer

Dr. S.N.Pashte, M.B.B.S, D.H.H.M

Dr. S.U. Mane, M.B.B.S.

CHEMOTHERAPY

Senior Scientific Officer

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

Scientific Officer

Ms. Vrushali N. Patil, M.Sc

Shri. Sushant Kaple, M.Sc. (w.e.f 01/08/ 2011)

CHEMICAL TESTING DEPARTMENT

Assistant Director

Shri. L.S. Patil, M.Sc. (Retired on 31/05/2011)

Senior Scientific Officer

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

Scientific Officer

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

Shri. Ashish L. Asrondkar, M.Sc

TOXICOLOGY

Scientific Officer

Dr. Pavankumar H.Chauhan, M.V.Sc. (Resigned on 29/02/ 2012)

Scientific Officer

Dr. Mrunal Ghag Sawant, M.V.Sc. (w.e.f. from 01/03/2012)

ZOONOSIS

Senior Scientific Officer

Shri. K. R. Pawar, M.Sc. (Snake Farm) (Retired on 30/06/2011)

Senior Scientific Officer

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

Scientific Officer

Dr. Mrunal Ghag Sawant, M.V.Sc. (Snake Farm and Animal house facility)

Dr. (Smt.) S. Bapna M.Sc., Ph.D (Research Associate)

VIROLOGY

Head of the Department

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

Senior Scientific Officer

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

Scientific Officer

Shri. Ritwik Dahake, M.Sc.

TRAINING SECTION

Officer In-charge

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

Training Officer

Shri. Sandeepan Mukherjee, M.Sc.

LIBRARY

Librarian

Shri. V. D. Mhapsekar, M.A., MLI Sc, M.Phil, Dip.Y. & A., Dip. J & M.

INTRODUCTION

The year 2011-12 was very remarkable for Haffkine Institute. In this year International symposia "THE NERVE 2011" and "Antimicrobial Resistance (AMR)" were organised by the Institute. Both were attended by the scientists of national and international repute. Institute has also organized "Maharashtra Biotechnology Day" on 14th Nov., 2011 which was attended by the students from various colleges in Biotechnology field.

This year many young and able scientists joined in various departments of institute. This recruitment has given impetus to the research, training & testing activities of the Institute. The expertise and initiative of these scientists will expand the scope of the laboratory services and research in near future.

The Bulletin of the Institute was relaunched last year after several years of hibernation and now it is regularly published. Research work of the scientists from Institute is published in this bulletin. This publication has opened up a new horizon for upcoming scientists of the Institute as well as researchers from other academic Institutes & Colleges.

Highlights of the various activities of the Institute:

Zoonosis :

Department of Zoonosis is actively engaged in research, testing and training programme on parasitic diseases of zoonotic importance since many years. The future research activities will be pursued with basic objectives to study the prevalence of disease, their epidemiology, diagnosis, immunology and vector biology of communicable diseases of public health significance like leptospirosis, malaria, filariasis, schistosomiasis and other important vector born diseases.

Several new facilities are established at the department for Bioefficacy, repellency, persistency testing against crawling & flying insects as per WHO guidelines. Several new instruments and equipments, Peet Grady chamber were added to enhance testing facilities. Currently Dr. Ramaiya Mira is heading the department. Earlier activities supported by new training and testing methodologies and are carried out with full zeal & devotion.

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 the 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 Lypholization of bacterial cultures etc. The department also conducts various research activities for M.Sc. and Ph.D. students.

The department also carries out Anti microbial (anti bacterial and anti fungal) efficacy testing of anti microbial incorporated materials like ceramic tiles, fabric material plastic sheets, asbestos sheets, oil paints etc. as per the Japanese Standard Specification also Rideal-Walker Coefficient (RWC) and Staphylococcus aureus Coefficient (SAC) testing of Phenolic disinfectant solution samples as per IS specification. The department is going to undertake the anti-bacterial and anti-fungal testing of disinfectant samples as per AOAC and EN (European Standards).

Chemotherapy :

The Chemotherapy department conducts "Analytical Instrumentation Training" for under graduates and post graduate students. The department is affiliated to the University of Mumbai for M.Sc. and Ph.D. degree for organic chemistry. The department has started short term training programme for Post-graduate students of M.Sc. (chemistry), B.Pharm, M.Pharm students. The department is being concerned with the research on synthesis and characterization of medicinally active intermediates. The department is also involved in testing of IR samples commercial and academic purpose.

Chemical Testing Department:

The main aim and objectives of the Testing unit is to analyze the alcoholic beverages like Indian Made Foreign Liquors (I.M.F.L), Beer, Toddy, Country liquor etc, to analyze the Denaturants (such as Benzene, Acetone, Crotonaldehyde, Diethylphthalate, Ethyl-Ether, Light Caoutchoucine, Pyridine base, Toluene, Diethylamine), Bitterants (Denatorium Sachharide and Denatonium Benzoate), Colourants (Crystal Violet and 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.

To analyze the samples of Special Denatured Spirit (S.D.S), Ordinary Denatured Spirit (O.D.S), French polish, Thinner, Ganja, Bhang, etc. sent by State Government of Maharashtra and to extend the expertise to State

Excise Department of the Government of Maharashtra in respect of above referred activities.

Virology:

The Department is affiliated to the University of Mumbai & MUHS, Nashik, 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).

This department carries out training, research and testing on wide variety of viruses as ancient as rabies to the new age H1N1. The department is primarily engaged in the research on viruses like HIV, Influenza and the 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 Level-3 (BSL-III) facility is 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 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.

Department of Virology is one department in the institute where classical microbiology and modern molecular biology methods are implemented simultaneously.

Clinical Pathology:

Clinical Pathology department actively participates in training programmes like ABT and viro-vitals. Department also conducts M.Sc. and Ph.D. Courses. Department are actively engaged in tuberculosis research work and hospital infection control projects along with checking of inhibitory activities of plant derived compounds against tuberculosis. The department is carrying out testing in hematology, serology, bacteriology, mycology and histopathology. It receives clinical samples from E.S.I.S. hospitals, govt. hospitals and public health dispensaries. Department also conducts antimicrobial, antimicobacterial and antifungal testing of

synthetic compounds delivered by the research centers, colleges and pharmaceuticals.

Biochemistry:

The Biochemistry department is actively engaged in various types of training, research and testing projects. Department of Biochemistry also conducts a workshop on ENZYMOLOGY. The present activities of the department include the biochemical testing of clinical samples for hospitals, private practitioners and for the annual medical check ups of the government and private organizations, Nutritional studies of food and beverages etc. It is actively working on various research projects focusing on biochemical and molecular characterization as well as *in vitro* and *in vivo* investigations for biological activities of Ayurvedic herbs and formulations or synthetic compounds and drugs. Clinical trials are also being conducted for the same.

Training Section:

The institute has offered various training programme for graduate and post graduate students of various colleges. During the year 2011-12, 203 students were given admission for Annual Biotechnology programme. 12 students were registered for viro-vital training programme, whereas 50 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 Jan. 2009 onwards. Five batches of students successfully completed the above course and sixth batch commenced 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.

ADMINISTRATION:

The Governing Council presided over by the Honourable Minister for Medical Education, Govt. of Maharashtra, met once during the year. Apart from this, Executive Committee (Administration) met regularly once a fortnight to provide smooth functioning of the Institute.

HIGHLIGHTS OF ACHIEVEMENTS

1. The Institute has been awarded ISO 9001: 2008 Certification in 2011-12 for the excellent quality services in training, research and testing.
2. The Maharashtra Medical Council has accredited Haffkine Institute to award CME credits to Registered Medical Practitioners for participating in Conferences / Workshops / Symposia organized by Haffkine Institute.
3. As part of NCDC-WHO Avian Influenza Surveillance project, the first BSL-III facility in Mumbai has been setup at the Institute.
4. The institute has organised symposium AMR 2011 (Anti microbial Resistance) from 11th -13th November 2011 in collaboration with the American Society for Microbiology (ASM), the European Society for Clinical Microbiology and Infectious Diseases (ESCMID), Indian Association of Medical Microbiologists (IAMM). It was attended by several International & National scientists, experts and postgraduates.
5. The Haffkine institute also organised symposium on, "National Ensemble on Rabies and other Viral Encephalitis" (NERVE 2011) from 27th to 28th September 2011.
6. Institute has also organised one day symposium on the occasion of "Maharashtra Biotechnology Day" on 14th November, 2011 on behalf of Department of Industries, Government of Maharashtra.
7. "Haffkine Day" on 10th January and "Haffkine Foundation Day" on 10th August were celebrated by the Institute.
8. "Teaching Pathologists & Microbiologists Association" was organised by the Institute on 14th January, 2012 and it was attended by the pathologists of the different hospitals, staff and students of the Haffkine institute.
9. Dr. Anand Chakraborty, Prof. Department of Microbiology, University of Illinois, Chicago, USA has delivered a guest lecture on the Topic: "Bacterial proteins: A New Class of Cancer Therapeutica" on 14th April, 2012 at Durbar Hall, Haffkine Institute, Mumbai.

10. Currently the Institute has 25 Senior Research Fellows out of which 9 students were enrolled for Ph.D. in the current academic year (2011-12), out of 4 Junior Research Fellows one enrolled for M.Sc. in the current academic year & 1 Post doctoral Fellow in various departments who are actively engaged in research in the field of infectious diseases.
11. Training was provided in following courses:

Sr. No.	Course	No. of Students		No. of Batches
		In Year 2011-12	Total	
1.	M.Sc.(by Research)	1	3	-
2.	Ph.D. Applied Biology & Microbiology	6	19	-
3.	Clinical Research Management & Regulatory Affairs	47	47	2
4.	Annual Biotechnology Training Programme	203	203	5
5.	Viro-Vitals	12	12	1

1. Fifty (50) students, who had enrolled for Short Term Research Internship Programme (STRIP), have completed their projects.
2. Twenty eight (28) Research papers were published in various National & International Journals, whereas thirty one (31) papers were presented in various conferences attended by staff and students of Haffkine Institute.
3. 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 (2011-12) was Rs. 25,21,400/- (Rupees Twenty Five Lakhs Twenty One Thousand Four Hundred Only).

Dr. Abhay Chowdhary

M.D, DHA, DM Virology,
Director

DEPARTMENT OF BACTERIOLOGY

TRAINING ACTIVITIES

This Department imparts training on Bacteriological examination of water samples, Bacteriological & Fungal examination of foods, soils samples etc. as per Indian Standard (IS) specifications, ASTM specifications or by any other specifications, to the personnel from various Government organizations.

This department also imparts training on Rideal-Walker Co-efficient (RWC) & Staphylococcus aureus Co-efficient (SAC) testing of Phenolic disinfectant solution samples to the personals from various Government organizations.

Currently this department is successfully carrying out Phenol Coefficient tests (Anti-bacterial test) as per AOAC methods against twenty four different types of disinfectant solution samples.

The department imparted training to three external students on anti-microbial efficacy testing of disinfectant sample.

Short Term Research Internship Programs (STRIP) :

Title of the Projects :

- 1) "Production of alpha-toxin from *Clostridium perfringens* under heat shock conditions".
Student - Mr. Mojidra Rahul Mahendra.
Guide – Dr. Abhay Chowdhary
- 2) "To access the bacterial load of portable water from various suburban railway stations of Mumbai".
Student - Mr. Gandigude Sagar Nagendra.
Guide – Dr. Abhay Chowdhary
- 3) "Biological & chemical synthesis of Gold nanoparticles & their potential applications".
Student - Ms. Gaonkar Mansi Ramdas.
Guide – Dr. Abhay Chowdhary

- 4) "Assessment of immunomodulatory activity of *Tragia involucrate*".
Student - Ms. Mestry Pranjali.
Guide – Dr. Abhay Chowdhary
- 5) "Isolation & Characterization of enteropathogenic *E.coli*".
Student - Ms. Bhatiya Rama.
Guide – Dr. Abhay Chowdhary

Research Projects in progress by Ph.D. Scholars :

- 1) "Production and Immobilization of Lipase from *Pseudomonas spp.* & Its Applications".
Student - Mr. Vishwe Vivek Sudam.
Guide – Dr. Abhay Chowdhary
- 2) "Plasmid diversity in *Pseudomonas aeruginosa* from different clinical samples".
Student - Mr. Dudhale Rohan Dattatraya.
Guide – Dr. Sunita Deshpande

RESEARCH PROJECTS COMPLETED:

1. Studies on multiple drug resistance in Enterobacteriaceae.
2. Antibacterial activity of Amikacin–Cefotaxime combination against Ciprofloxacin resistant isolates.
3. This Department was conducting the genetic studies on R. plasmid mediated antibiotic resistance in *S.typhi*. They also undertook the studies on antibacterial activities of the extract of indigenous plant.
4. Investigated the anti-fungal & anti-bacterial properties of synthetic compounds and herbal formulations developed by various departments of this Institute.
5. Paper presentation at International conference on innovation in chemistry for sustainable development, Punjab University, Chandigarh, from 01/12/2011 to 03/12/2011.
6. Research Article sent for publication in International journal of Research in Pharmaceutical & Biomedical Sciences.

7. Title: "Pyrazolene-Benzofuran derivatives: Synthesis & Biological Evaluation". Asrondkar, Y. P. Yadav, V. N. Patil, A. S. Bobde, S. P. Gajbhiye & A. S. Chowdhary (Accepted for publication).

TESTING:

This Department has been carrying out the Bacteriological examination of water sample from various sources.

Testing of various types of water purification systems, that includes U.V water purification systems, Polysulphone membrane water filters, Ultra membrane water filters, R.O. based water filters, Iodized resin based water purifiers and anti-microbial substances containing cartridge based water purifiers..

In vitro anti-microbial testing of various types of disinfectants, sanitizers and anti-microbial agents.

Anti-microbial (anti-bacterial & anti-fungal) efficacy testing of anti-microbial incorporated materials like ceramic tiles, fabrics materials plastic sheets, asbestos sheets, oil paints, etc as per Japanese Standard Specification..

Rideal-Walker Co-efficient (RWC) & Staphylococcus aureus Co-efficient (SAC) testing of Phenolic disinfectant solution samples as per IS specifications.

This department also undertaken the anti-microbial testing activities i.e. Phenol Coefficient test as AOAC (American Association of Organic Chemist) of various disinfectant samples submitted by M/s. Hindustan Unilever Limited, Mumbai, Lyophilization of bacterial & fungal cultures, etc.

DATA OF TESTING STUDIES:

A) Testing studies

Sr. No.	Nature of the Sample Tested And the Test Performed	Total Number of Samples Tested
1.	Water samples (Bacteriological examination of water sample	53
2.	Water purifiers of all types(Anti-bacterial efficacy and retention of bacteria by water purifiers)	19
3.	Disinfectant (Anti-microbial efficacy testing of various disinfectant samples	30
4.	Miscellaneous (Lyophilization, water storage tank, Paint, Air Neutralizer & microbiological examination of samples etc.	08
5.	Total numbers of samples tested and total charges earned (in Rupees) during the year April 2011 to March 2012	110

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

CHEMICAL TESTING DEPARTMENT

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

Following tests are carried out in the department:

1. To analyze the Alcoholic Beverages like Indian Made Foreign Liquors (I.M.F.L), Beer, Toddy, Country liquor, etc.
2. To analyze 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 Government of Maharashtra.
3. To analyze the samples of Special Denaturant Spirit (S.D.S), Ordinary Denatured Spirit (O.D.S.), French Polish, Thinner, Ganja, Bhang etc. sent by Government of Maharashtra.
4. To extend the expertise to State Excise Department of the Government of Maharashtra in respect of above referred activities.

1st April, 2011 to 31st March 2012.

Sr. No.	Type of Sample	Number of Sample Received
1.	TDL (ODS / SDS)	4,552
2.	CL – I	14,182
3.	CL – III	6,044
4.	Toddy	3,320
5.	TL (Beer, IMFL)	1,159
6.	TCL	18
7.	TFS	03
8.	TAC	72
	Total	29,350

DEPARTMENT OF ZOONOSIS

TRAINING:

1. Training provided to five Students (M.Sc. by research and Ph.D. scholars) for mosquitoes repellence tests under the guidance of Dr. Mira Ramaiya, Head, Department of Zoonosis..
2. Training provided to M.Pharm student from Dr. L.H Hiranandani College of Pharmacy, Ulhasnagar on "In-vitro malaria parasite culture" from December to February 2011, under the guidance of Dr. Saroj Bapna, Scientific Officer.
3. Training provided to eleven students (M.Sc. by research and Ph.D. scholars) for Animal handling, Different routes of drug administration and blood collection techniques during "PPLAC - Principles & Practices of Laboratory Animal Care" workshop on 4th and 5th June 2011 under the guidance of Dr. Mrunal Ghag Sawant, Scientific officer.
4. Department also actively participated in Annual Biotechnology Training program (ABT 2011-12).
5. Training provided to five students ((M.Sc. by research and Ph.D. scholars) on Larvicidal activity of various herbal plant extract under the guidance of Dr. Mira Ramaiya, Head, Department of Zoonosis.

Workshops organized:

1. Workshop was arranged on "Mission to Control Mosquito Menace" for college M.Sc students on 17.06.11, 24.06.11 and 04.07.11. Total numbers of students were 39 and they were from following colleges, Thadomal Sahani Engineering College, Bandra, Elphinstone, Fort and Chandibai Himathmal Mansukhani College, Ulhasnagar under the guidance of Dr. Mira Ramaiya, Dr. Saroj Bapna & Dr. Mrunal Ghag Sawant.
2. Workshop on "Principles and Practices of laboratory animal Care" was conducted on 4th - 5th June 2011. Total eleven participants attended this programme which was conducted under the guidance of Dr. Mrunal Ghag Sawant.

RESEARCH PROJECTS:**Ph.D. / M.Sc. Scholar's Research projects in progress
(Registered students-02)**

Sr. No.	Title of Project	Name of Student	Name of Research Guide
1.	Assessment of dendritic cell vaccine as an immunotherapeutic agent in Malaria	Mr. Rahul Gosavi	Dr. Ranjana A. Deshmukh
2.	Assessment of BCG vaccines as an adjuvant in Japanese Encephalitis virus vaccine	Mr. Sahil Kulkarni	Dr. Abhay Chowdhary
3.	Comparative analysis of different methods for diagnosis of malaria	Mr. Paras Mahale	Dr. Mira Ramaiya

Ongoing Departmental Projects:

Sr. No.	Title of Project/Name of the Company	Name of Students	Name of Research Guide
1.	To Evaluate the Bioefficacy and Persistency of test compounds against different crawling and flying insects. AkzoNobel, India, Navi Mumbai.	Mr. Sahil Kulkarni	Dr. Mira Ramaiya
2.	To evaluate the bio-efficacy and surface Persistency of insecticidal combinations against Cockroaches, Bedbug and House fly. Bayer Crop Science Ltd, Powai.	Ms.Raksha Shinde &Ms. Mansi Malik	Dr. Mira Ramaiya
3.	To Study the bio-efficacy and Persistency of insecticidal product for public health importance. BASF India Ltd, New Mumbai.	Mr.Chinmay Oroskar & Mr. Paras Mahale	Dr. Mira Ramaiya
4.	To evaluate the efficacy of mosquito repellents on human skin. Unilever Industry Pvt. Ltd, Bangalore.	Mr. Apurva Gode	Dr. Mira Ramaiya

Short Term Research Internship Programme Completed:

Sr. No.	Title of Project	Name of Student	Name of Research Guide
1.	Assessment of Non- specific immune response of BCG vaccine on Japanese encephalitis virus	Ms. Anupama Pandey	Dr. Abhay Chowdhary
2.	Gene Expression studies of Odorant Binding proteins (OBP) gene in UV treated mosquitoes	Mr. Vipul Thakur	Dr. Abhay Chowdhary
3.	Interplay of TNF-A, HO-1 and I-NOS expression in the CNS in murine model of cerebral malaria	Ms. Samruddhi Mayekar	Dr. Abhay Chowdhary

Research Projects in progress by M.Sc. Students:

Sr. No.	Title of Project	Name of Student	Name of Research Guide
1.	Insecticide Resistant Gene Diversity in Mosquito Larvae.	Ms. Raksha Shinde	Dr. Mira Ramaiya
2.	Immunological studies on Japanese encephalitis virus vaccine using BCG as adjuvant (inactivated SA-14-14-2)	Mr. Nitesh Sanghavi	Dr. Abhay Chowdhary
3.	Immunological studies on Japanese encephalitis virus vaccine using BCG as adjuvant (Normal SA-14-14-2)	Ms. Sugandha Sinha	Dr. Abhay Chowdhary
4.	To study OBP expression after exposure of <i>Aedes</i> & <i>Culex</i> mosquitoes to different types of traces.	Ms. Priyanka Godse	Dr. Abhay Chowdhary
5.	Assessment of chemokine response in murine model of malaria	Ms. Shefali Mishra	Dr. Abhay Chowdhary

Research project approved for grants :

Indian Council of Medical Research has approved the project entitled "Evaluation of anti-plasmodial potential of plant derived alkaloids" for the grant on 21st July, 2011.

Sponsored Research Projects :

University Grant Commission has sponsored the project entitled “Isolation and Characterization of extracellular Secondary metabolites from microorganisms isolated from different ecological niche for its mosquito-larvicidal potential” in July 2011.

Research papers published in Scientific Journals:

1. Growth Inhibitory and Larvicidal 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 2010 (Pg. No. 307 – 309).
2. 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 (Pg. No. 18 – 20).
3. Mosquito Larvicidal Activity of Indigenous Plant Extract Against *Aedes Aegypti* Larvae, Saroj Bapna*, Meera Ramaiya and Abhay Chowdhary
Haffkine Bulletin
Vol.13 No. 2/ April 2011 (Pg. No. 39 – 41).

Papers presented in Conferences:

1. Dr. Saroj Bapna has presented a paper entitled “Mosquitoes’ thirst for sugar, can control mosquito and mosquito borne diseases” XI Symposium on Vectors and Vector Borne Diseases Organized by Regional Medical Research Centre for Tribals (ICMR) from 15th to 17th October 2011 at Jabalpur.
2. Mr. Chinmayanand Oroskar has presented a paper entitled “Evaluation of different plant extracts against *Plasmodium falciparum* by in vitro method” in Symposium on Vector & Vector borne diseases, from 15th to 17th October 2011 at Jabalpur.

3. Ms. Pallavi Kurkure Choudhary has presented a paper entitled "Assessment of role of Mosquito's mid-gut bacteria on egg production in *Aedes aegypti*" in Symposium on Vector & Vector borne diseases from 15th-17th October 2011 at Jabalpur.
4. Ms. Mansi Malik, SRF has presented a paper entitled "Role of mosquito Mid Gut Micro flora in Blood Digestion: A preliminary Assessment" in Symposium on Vector & Vector borne diseases from 15th-17th October 2011 at Jabalpur.
5. Dr. Mira Ramaiya has presented a paper entitled "Entomological survey of Mosquitoes in and around Mumbai" in Symposium on Vector & Vector borne diseases from 15th-17th October 2011 at Jabalpur.
6. Mr. Paras Mahale has presented a paper entitled "Comparative Analysis of Oviposition Attractancy of *Aedes aegypti* towards different Bacterial cultures in water bodies" from 15th-17th October 2011 at Jabalpur.
7. Mr. Sahil Kulkarni has presented a paper entitled "16 s rRNA gene-Based Identification of mid-gut Bacteria from *Culex* and *Aedes*" from 15th-17th October 2011 at Jabalpur.

Conferences / Symposia attended:

1. Workshop on "Strategies to enhance Blood Safety" was attended by Dr. Mira Ramaiya and Mrs. Sanika Parkar. This workshop was held by federation of Bombay Blood Bank, at Hiranandani Hospital, Powai on June 14, 2011.
2. XI Symposium on Vectors and Vector Borne Diseases Organized by Regional Medical Research Center for Tribals (ICMR) was attended by Dr. Mira Ramaiya and Dr. Saroj Bapna along with five senior research fellows and one junior research fellow at Jabalpur in October 2011.
3. "National Ensemble on Rabies and other Viral Encephalitis", organized by Haffkine Institute for Training Research and Testing on 27th & 28th September 2011 was attended by the staff and students of Zoonosis department..

4. "XIth Annual conference of Indian academy of Vaccinology and Immunobiology and National Vaccinology Symposium", Organized by Haffkine Institute for Training Research and Testing on 4th & 5th March 2011 was attended by the staff and students of Zoonosis department.
5. Conference on Anti Microbial Resistance organized by Haffkine Institute for Training Research and Testing from 11th - 13th November 2011 was attended by the staff and students of Zoonosis department.

TESTING ACTIVITIES

Sr. No.	Nature of the sample tested And the Test performed	Total number of sample tested
1.	Commercial Insecticide Testing	41

DR. PRATIBHA CHATURVEDI

WOMEN SCIENTIST FELLOW,

DEPT. OF SCIENCE AND TECHNOLOGY (DST), GOVT. OF INDIA

TRAINING ACTIVITIES:

- 1) Workshop attended on "Molecular technique" in December 2010, at Bhavans College, Mumbai, sponsored by Department of Biotechnology, New Delhi.
- 2) Participated as faculty in The "Annual Biotechnology Programme" conducted at Haffkine institute 2011-12.
- 3) STRIP student's research project on secondary metabolite in tissue culture on *Tylophora indica* was completed under the guidance of Dr. Pratibha Chaturvedi.

RESEARCH PROJECTS:

1. Enhancement of kaempferol in tissue culture of *Tylophora indica*
Student: - Ms. Supriya Shinde (STRIP)

Guide: - Dr. Abhay Chowdhary

Project Summary

Kaempferol is known as a highly active antioxidant compound. It was enhanced by using different protocols like using elicitors, precursor compounds and amino acids *in vitro* tissue culture of *Tylophora indica*.

2. RAPD AND ISSR Analysis of regenerated plants of *Tylophora indica in vitro*

Student name: Ms. Sayali Sawant and Mr. Jigar Talekar

Guide: - Dr. Abhay Chowdhary.

3. Title of the project: Tylophorin the most potent and antiallergic principle from *Tylophora indica* somatic cells *in vitro* Principal Investigator: Dr Pratibha Chaturvedi

(Former Post Doctoral Fellow of Haffkine institute).

This project is sponsored by Department of Science and Technology, New Delhi for Women scientist scheme award.

Project Summary:

Higher plants are rich source of medicinally important compounds which can be enhanced by plant tissue culture technique. The useful natural products are synthesized through secondary metabolism; hence they are also known as secondary metabolites. Large scale yield of secondary metabolites from cultured plant cells can be increased simply by changing the physiological and biochemical conditions from growth medium. This project is based on the production and enhancement of medicinally important compound tylophorin, which is key alkaloid of *Tylophora indica*, an antiasthmatic medicinal plant belongs to family Asclepiaceae. The isolation, identifications and purifications are carried out by using different techniques like column chromatography, HPTLC analysis with standard compound of tylophorin. Enhancement of tylophorin is being carried out by using various protocols like precursors, intermediate compounds of biosynthetic pathway, suspension culture, biotic elicitor and abiotic elicitor.

List of publications :

1. S.Bapna, Pratibha Chaturvedi, and A. Chowdhary 2011."Growth inhibitory and larvicidal effect of *Adenthera pavonina* L seeds against *Aedes aegypti* mosquito larvae". Journal of Phytological Research 23, 2.,11.
2. S. Gajbhiye, Pratibha Chaturvedi and A. Chowdhary 2011 Antifungal activity of some medicinal plants sps. Bulletin of Haffkine Institute. 13, 1, 16.
3. Pratibha Chaturvedi, Somen Roy, Shweta Kothari and Abhay Chowdhary .2011 Pharmacologica potential of *Tylophora indica* callus. Bulletin of Haffkine Institute.13, 2, 19.
4. Pratibha Chaturvedi and Abhay Chowdhary2011. Enhancement of tylophorin in *Tylophora indica* callus J. of Phytological Research 24, 1, 9-13.
5. Pratibha Chaturvedi Abhay Chowdhary 2011.Strategies for enhancement of tylophorin in *Tylophora indica in vitro* .25, 2 (Accepted).Journal of Phytological Research.
6. Pratibha Chaturvedi Abhay Chowdhary 2011. Evaluation of Anti-influenza activity of *Tylophora indica* leaves. 25, 2 (Accepted). Journal of phytological research.

PAPER PRESENTATIONS :

1. Dr. Pratibha Chaturvedi has presented a paper entitled "Enhancement of Kaempferol *in vitro* tissue culture of *Tylophora indica*" in Indian Science Congress, Bhubneshwar from 3rd-7th January 2012.
2. Paper presented entitled "Anti-influenza activity in vitro of *Tylophora indica* (Asclepeadaceae) leaves" in International conference of Antimicrobial Resistance from 11th-13th Nov. 2011.
3. Paper presented entitled "Antimicrobial activity of *Tylophora indica* nanoparticle" in International Conference of Antimicrobial Resistance from 11th-13th Nov. 2011.
4. Paper presented entitled "Evaluation of anti microbial potential of Chromatographic fraction of *Tylophora indica* (Asclepedeaceae)" in International conference of Antimicrobial Resistance from 11th-13th Nov. 2011.

5. Paper presented entitled "Study of organogenesis in tissue culture of *Tylophora indica* (Asclepeadaceae)" in State level seminar on biotechnology in D.Y. Patil University on 26th December 2011.

ACHIEVEMENTS

1. Awarded women scientist award by Department of Science and Technology (DST) Ministry of Science and Technology, New Delhi . Govt. of India.
2. The book entitled IN VITRO PRODUCTION OF SECONDARY METABOLITES OF MEDICINAL PLANTS (Authers-Pratibha chaturvedi, Prof. Pushpa Khanna and Prof. Abhay Chowdhary) has been published from LAMBERT Academics, Germany on 8th May 2012.
3. Developed the new protocols for enhancing Alkaloid *in vitro* tissue culture of *Tylophora indica* and published in indexed journal.



Pratibha Chaturvedi
Pushpa Khanna
Abhay Chowdhary

Pratibha Chaturvedi

Dr. Pratibha Chaturvedi is Ph.D from Raj. University, Jaipur and worked on micropropagation of *Jatropha curcas* (Euphorbiaceae) plant for five years. She is life member of Indian Sci. Congress and Women scientist fellow, Ministry of Sci. and Tech., Gov. Of India. She has published twelve research paper in various Index Journ. and presented res. paper in seminars.



978-3-659-12032-9

In Vitro Production of Secondary Metabolites of Medicinal Plants

Secondary Metabolites from Medicinal Plants: A
Biotechnological Approach

LAP LAMBERT
Academic Publishing

DEPARTMENT OF ZOONOSIS (Venomous Animal Unit)

TRAINING ACTIVITIES:

Training Conducted by the staff & students of the department :

1. Department was actively engaged in training of staff of public health institutions like municipalities and Zillah Parishad in herpetology in September & December 2011, March 2012 in Venomous Animal Unit of Zoonosis Department.
2. Training provided to BEST employees on "Identification of Venomous and Non-venomous Snakes, FIRST AID Measures after Snake Bite" on 27th June 2011, Anik, Pratiksha Nagar & Deonar Depot and also on 28th June 2011 at Oshiwara and Malwani Depot, Goregaon, Mumbai.
3. Lectures and practical demonstrations conducted in "Annual Biotechnology Training Program" from April to June 2011.
4. Practical demonstrations of Animal Handling and Necropsy Technique in "Viro-vitals" in February 2011.

Workshop organized by the staff / students of the department :

1. Organized two days workshop on "Principles and Practices of Laboratory Animal Care and Ethical Measures in Animal Experiment" on 9th - 10th April, 2011 and 4th – 5th June, 2011.
2. Organized two days workshop on "Introduction to Covert Existence of Snakes" on 27th – 28th June 2011.

Training / Workshop attended by the staff or students of the department:

1. Dr. Mrunal Ghag Sawant has attended workshop on "Structural Biology & Bioinformatics" on the occasion of National Science Day held on 28th February, 2012 at University of Mumbai, Kalina, Mumbai.
2. Dr. Mrunal Ghag Sawant has attended workshop on "Sexual

Harassment at work place” organized at University of Mumbai, Mumbai.

3. Dr. Mrunal Ghag Sawant and Mr. Vishal Wagh, SRF participated in “National Conference on Toxinology 2011” organized by University of Madras from 17th to 18th of December, 2011.

RESEARCH PROJECTS :

Ongoing Projects of the Ph.D. Students :

1. “Characterization of snake venom as potential inflammation inhibitor”

Student: - Mr. Vishal Wagh,

Guide: - Dr. Abhay Chowdhary (Guide),

Short Term Research Internship Programme (STRIP) :

1. “Biological characterization of Lyophilized Echis Venom” Dr. Mrunal Ghag Sawant (Co-Guide), Ms. Rujuta Dhobale, Pillai College, New Panvel.
2. Biological characterization of Lyophilized Cobra venom, Dr. Mrunal Ghag Sawant (Co-Guide), Ms. Shruti Mahale, Thakur College of Arts, Science and Commerce, New Panvel.
3. Biological characterization of Lyophilized Russell’s viper venom, Dr. Mrunal Ghag Sawant (Co-Guide), Ms. Rishita Shetty, V.G. Vaze College, Mulund.
4. Biological characterization of Lyophilized Krait venom, Dr. Mrunal Ghag Sawant, (Co-Guide), Ms. Sheetal Mule, Viva College, Virar.
5. Study of micro flora of Snakes mouth, evolution and constitution of snake venom, dietary effect on venom production, Dr. Mrunal Ghag Sawant (Co-Guide).

Research projects in progress :

1. To determine the potency of Lyophilized Snake Venoms
Investigator: Dr. Mrunal Ghag Sawant, (SO) Mr. Vishal Wagh, (SRF).

2. Extraction, isolation & chemical & biological characterization of selected indigenous herbs against snake and Scorpion venom
Investigator: Dr. Mrunal Ghag Sawant, (SO) Mr. Vishal Wagh, (SRF).
3. In vitro evolution of enzyme inhibition of Plant extract on venom.
Investigator: Dr. Mrunal Ghag Sawant, (SO) Mr. Nakul Shah, (SRF).
4. Snake Repellent Activity of various indigenous plants against poisonous and non poisonous snake.
Investigator: Dr. Mrunal Ghag Sawant, (SO).

Sponsored / Collaborative Research studies :

1. *In vitro* assays of snake venoms under metallic nano particle environment in collaboration with Department of Biophysics, Mumbai University, Dr. Mrunal Ghag Sawant.
2. Cytotoxic activity of Different samples of Lyophilized Snake venom in collaboration with Department of Virology, Haffkine Institute, Dr. Mrunal Ghag Sawant and Dr. Sweta Kothari.

Papers presented at seminars, conferences and symposia :

1. Dr. Mrunal Ghag Sawant has presented a paper entitled "*In Vitro* Evaluation of Antioxidant Activity of Lyophilized Snakes Venom" at National Conference on Toxinology 2011 held in Chennai.
2. Dr. Mrunal Ghag Sawant has presented a paper entitled "*In Vitro* Evaluation of Antibacterial Activity of Snakes Venom" at National Conference on Toxinology 2011 held in Chennai.

TESTING ACTIVITIES:

Department was actively engaged in following Testing activities (Refer Appendix I; Table 1):

1. "Evaluation of Anti rodent activity of test compound against commensal and wild rodents".
2. "Evaluation of Anti Termite activity of test compound against subterranean termites".

APPENDIX I

Table 1: The details of the tests undertaken:

Sr. No.	Type of test	No. of sample tested
1.	Evaluation of Anti Termite activity of test compound.	2
2.	Evaluation of Anti rodent activity of test compound.	6

Table 2: Statement of venom production and supply:

Snake and scorpion	Opening stock (gm)	Production (gm)	Sale (gm)		Lyophilized used for research	Closing stock (gm)
			External	Gift		
Cobra	143.26	-	1.5	-	1.83	139.93
R. Viper	22.515	-	1.5	-	0.01	20.99
Krait	0.04	0.9	-	-	0.05	0.89
Echis	17.87	-	0.8	-	0.0125	17.05
Red scorpion	15.913	-	1.04	-	-	14.873

Table 3: Total number of snake survey conducted:

Sr. No.	Period of work	Total number of survey
1.	April 2011-March 2012	25

Table 4: Total number of identification report issued:

Sr. No.	Period of work	Total number of snakes received for identification	Total number of reports issued
1.	April 2011-March 2012	57	57

Table 5: The total number of visitors visited:

Sr. No.	Date	No. of Visitors attended
1.	April 2011-March 2012	2135

DEPARTMENT OF VIROLOGY

TRAINING ACTIVITIES :

The following staff members of the department are recognized post-graduate teachers at the University of Mumbai and Maharashtra University of Health Sciences (MUHS) for the respective degrees and subjects mentioned 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 31.03.2012
1.	Dr. Abhay Chowdhary	M.Sc. & Ph.D., 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., Microbiology & Applied Biology	Mumbai	Ph. D (01)
		Ph. D Medical Microbiology	MUHS	Ph. D (04)
3.	Dr. Sweta Kothari	M.Sc. Applied Biology	Mumbai	Nil

1. The Annual Biotechnology Training Program was conducted in 6 batches from 13th April 2011 until 1st July 2011. Two Hundred Seventy five (275) B.Sc., M.Sc. and B.Tech Students were enrolled and a total revenue of Rs. 8, 25,000/- 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, Nashik from 27th January 2011 until 1st March 2011. Twenty Seven candidates were enrolled and a revenue of Rs. 81,000/- was generated.
3. Four Students pursuing M.Sc. Biotech. Degree under Mumbai University completed their Short Term Research Internship Program in Dec 2011. Three M.Tech biotech students from Padmashree

Dr. D. Y. Patil University and Two B.Tech Biotechnology Dr. D Y Patil University, Navi Mumbai were enrolled under the Short Term Research Internship Program in January 2012.

4. Training programs and workshops attended:

- i. Ms. Devanshi Gohil, Senior Research Fellow Department of Virology, attended WHO Sponsored "Hands On Laboratory training for Characterization of influenza group Viruses" organized by National Center Of Disease Control from 25th to 29th April 2011 at New Delhi.
- ii. Ms. Devanshi Gohil, Senior Research Fellow Department of Virology, attended Good Clinical Practice and study protocol training conducted as a part of investigator meeting for phase iv Clinical trial of Intra Nasal Seasonal Influenza Vaccine by Serum, Institute of India Research Formation, Pune on 1st November 2011.
- iii. Ms. Devanshi Gohil, Senior Research Fellow Department of Virology, attended 'Research Methodology Workshop' organized by MUHS, Nashik from 28th November to 3rd December 2011.
- iv. Mr. Rohan Kesarkar, Senior Research Fellow, Department of Virology, attended Nanotechnology Training – Synthesis and application, May 2011 to May 2012, 6 months training at nsnRc for Nanotechnology & bio-Nanotechnology, SICES COLLEGE AMBERNATH.
- v. Ms. Shraddha Mehta, Senior Research Fellow Department of Virology, attended APCIRCON, organized by rabies in Asia foundation at Chennai from 9th to 10th July 2011.

RESEARCH ACTIVITIES:***Post – Graduate Students Research Projects:***

Sr. No.	Title	Name of Student	Name of Research Guide
1.	Study of Drug-Resistant HIV-1 in the patient cohort in Mumbai.	Mr. Ritwik Dahake	Dr. (Mrs.) R. A. Deshmukh
2.	Study of potential therapeutic activity of Gold Nano Particles against HIV.	Mr. Rohan Kesarkar	Dr. Abhay Chowdhary
3.	Immunogenicity study of recombinant Dengue Gene Construct in Mice.	Mr. Ajit Kulkarni	Dr. (Mrs.) R. A. Deshmukh
4.	To study the prevalence and characterization of Dengue Virus in and around Mumbai.	Ms. Kanchan Kathalay	Dr. Abhay Chowdhary
5.	Study of Neuronal proteome in prognosis of Rabies in Murine Model.	Ms. Shraddha Mehta	Dr. Abhay Chowdhary
6.	Molecular characterization of 2009 H1N1 pandemic Influenza and seasonal Influenza Viruses from patients in Mumbai region	Ms. Devanshi Gohil	Dr. (Mrs.) R. A. Deshmukh
7.	Assessment of Plant Proteins/ Peptides as potential anti-viral agents.	Mr. Sandeepan Mukherjee	Dr. Abhay Chowdhary
8.	Assessment & Characterization of differential proteome in patients with Acute Infection.	Mr. Rahul Chavan	Dr. Abhay Chowdhary

Short Term Research Internship Programs:

Sr. No.	Title	Name of Student	Name of Research Guide
1.	Assessment of anti Rabies activity of leaf extracts of Allamanda Cathartica	Ms. Raksha Iyengar	Dr. Abhay Chowdhary
2.	Evaluation of In vitro anti influenza activity of Jatrobha Curcs Leaf Extract & Sap	Ms. Priya Hariharan	Dr. Sweta Kothari
3.	Assessment of Neuronal Oxidative Stress in Rabies Infected Murine Model	Ms. Riya Kanherkar	Dr. Abhay Chowdhary
4.	Assessment of Immumobulatory activity of rHIF in Rabies infected murine model	Ms. Namrata Yadav / Mr. Naitik Patel	Dr. Abhay Chowdhary
5.	Assessment of anti Viral Activity of Adhatoda Assessment Vasica	Ms. Tanvee Sawant	Dr. Sweta Kothari
6.	Study of anti Oxidant Activity of Allium SP, Frugari SP. Brassica SP, vitis Sp on epithelial cancer cell line	Ms. Mamta Bhatia	Dr. Sweta Kothari
7.	<i>Study of anti Oxidant activity of Allium SP, Frugari SP. Brassica SP, Vitis Sp on fibro Sarcoma Cell line</i>	Ms. Nivedita Chowdhary	Dr. Sweta Kothari

Research papers published:

- i. Ms. Devanshi Gohil – Necessity of Hib Vaccination in pediatric population A survey in Bulletin of Haffkine Institute in April 2011, vol13(2), pg 17-19.
- ii. Mr. Somen Roy, Dr. Sweta Kothari & Dr. Abhay Chowdhary Pharmacological, Potential of tylophora indica (Anatmul) callus Bulletin of Haffkine Institute, Vol 13, no-2, pg 32-34.

- iii. Mr. Somen Roy, Dr. Abhay Chowdhary Evaluation of Invitro Anti Tuberculosis activity of extracts asparagus racemosus, Solanum surattense, Cinnamomum verum, Bulletin of Haffkine Institute, Vol 13, no-1, pg 15-17.
- iv. Mr. Somen Roy, Mr. Ritwik Dahake, Dr. Abhay Chowdhary In vitro Susceptibility of Influenza A-virus to Amantadine Hydrochloride, Bulletin of Haffkine Institute, Vol 13, no-1, pg 33-34.

Papers Presentation:

- i. Mr. Ritwik Dahake, Mr. Soumen Roy, Mr. Deepak Patil, Dr. Abhay Chowdhary, Dr. Ranjana A Deshmukh, Evaluation of anti viral Activity of Jatropha Curcus leaf extract against Potentially drug – resistant HIV-isolate, First international conference on HIV science and infectious diseases, YRG Care, 2012, ISSHID-P011.
- ii. Mr. Soumen Roy, Dr. Abhay Chowdhary, in-Vitro anti influenza activity of Tylophora indica (Asclepeadaceae), AMR conference 2011, P-22, pg – 108.
- iii. Mr. Ajit Kulkarni, Mr. Deepak Patil, Ms. Kanchan Kathale, Dr. Sweta Kothari, Dr. Abhay Chowdhary “A Preliminary Study to assess the efficiency of different diagnostic tools for Dengue Virus Infection) was presented at the National Virology Conference held at Vidya Pratishthan School of Biotechnology, Baramati during 23rd to 25th Jan 2011.

CONFERENCE ATTENDED:

- i. Mr. Ritwik Dahake, Mr. Somen Roy, Ms. Devanshi Gohil, Mr. Rahul Chavan, Ms. Paily Chaterjee, Ms. Purna Charan, Mr. Rohan Kesarkar, Mr. Ajit Kulkarni attended National Ensemble on Rabies and other Viral Encephalitis (NERVE) in September 2011 at Haffkine Institute, Mumbai.
- ii. Mr. Ritwik Dahake, Mr. Somen Roy, Ms. Devanshi Gohil, Mr. Rahul Chavan, Ms. Paily Chaterjee, Ms. Purna Charan, Mr. Rohan Kesarkar, Mr. Ajit Kulkarni, Mrs. Amita Patil, Dr. Sweta Kothari attended International Workshop on Antimicrobial Resistance organised by Haffkine Institute in Nov. 2011 at Mumbai.

TESTING ACTIVITIES

Sr. No.	Name of the Test	Total Test
1.	H1N1 Testing	77
2.	Rabies testing	11
3.	HSV testing	05
4.	Dengue testing	02
5.	JE virus testing	05
6.	Specialized testing	--

GUEST LECTURES

Dr. Abhay Chowdhary, Head of Department of Virology & Director, Haffkine Institute delivered the following guest lectures and attended the conferences during the year 2011-2012.

Sr. No.	Date	Name of the Institution	Guest Lectures delivered / Conferences attended
1.	09.04.2011	Tata Memorial Hospital, Parel, Mumbai.	Participated in 462 nd TPC meeting and delivered a talk on "Quality in Clinical Microbiology".
2.	15-17.04.2011	Regional Medical Research Centre (ICMR), Bhubaneswar.	Participated in 8 th Joint Annual Conference of the Indian Society for Malaria and Other Communicable Diseases & the Indian Association of Epidemiologists and delivered a guest lecture on "Chikungunya".
3.	25-29.04.2011	National Centre for Diseases Control, Delhi.	Participated in the workshop on "Hands-on Laboratory Training for Characterization of Influenza Group of Viruses for Microbiologists and Laboratory Technician of the 10 pre-identified AI Lab Network under IDSP (NCDC)".
4.	13.06.2011	Seth G.S. Medical College & KEM Hospital, Mumbai.	Participated in the CME programme on "Monsoon Related Febrile Illness".
5.	14-16.09.2011	Scientific & Applied Research Center, Meerut, UP.	Participated in the National Symposium on "Advances in Biotechnological Research in Agri-Horticultural Crops for sustaining Productivity, Quality Improvement & Food Security".

6.	22.09.2011	Bharati Vidyapeeth Deemed University Medical College, Pune.	Attended (MICROCON – 2011) the CME on Virology as speaker and delivered lecture on “Emerging and Re-emerging Infectious Diseases (ID) Threats”.
7.	27-28.09.2011	Haffkine Institute, Mumbai.	Organized national symposium on “National Ensemble on Rabies & other Viral Encephalitis” (NERVE-2011) and delivered lecture on “Emerging Viral Encephalitis”.
8.	11-13.11.2011	Haffkine Institute, Mumbai.	Organized International Workshop on Antimicrobial Resistance and delivered lecture on “Antimicrobial Resistance & Overview”.
9.	14.11.2011	Haffkine Institute, Mumbai.	Organized Seminar on ‘Maharashtra Biotechnology Day’ and delivered lecture on “A trip in wonderland of biotechnology”.
10.	23-26.11.2011	Institute of Medical Sciences, BHU, Varanasi.	Attended the 35 th National Conference of IAMM (MICROCON – 2011).
11.	17-18.12.2011	Tata Institute of Social Sciences, Alums Association, Mumbai.	Attended the Platinum Jubilee Alumni Meet, 2011 and delivered a talk on “Rethinking Social Justice”.
12.	13-14.01.2012	Haffkine Institute, Mumbai.	Organized symposium on “Update in Parasitic Diseases”.
13.	23-25.01.2012	VSBT, Baramati.	Participated in the National Virology Conference “Frontiers in Virology Targeting Viruses: Surveillance, Identification & Management” and delivered a Keynote Address.
14.	24.02.1012	Government Medical College, Aurangabad.	Participated & delivered a Guest Lecture for PG Students on “Antimicrobial Susceptibility Testing – Challenges Before Microbiologists”
15.	24-26.02.2012	Tata Memorial Centre, Mumbai.	Participated as a faculty in the 10 th Annual Meeting on “Evidence Based Management of Cancers.
16.	28.02.2012	Institute of Science, Mumbai.	Participated as the Chief guest for “The Research Scholars’ Meet” and delivered a key note lecture.
17.	16-18.03.2012	Hotel Taj Lands End, Mumbai.	Participated in the “HIV Congress 2012”.
18.	28.03.2012	National Rural Health Mission, Mumbai.	Delivered a lecture on “Infection Control”.

1. Dr. Sweta Kothari, Sr. Scientific Officer, Department of Virology, was invited as subject expert for setting of exam paper M. Tech (Biotechnology) Practical Examination at Padmashree DY Patil College, Navi Mumbai.
2. Mr. Ritwik Dahake, Scientific Officer, Department of Virology was invited as an external examiner for M. Tech (Biotechnology) Practical Examination at Padmashree DY Patil College, Navi Mumbai, December, 2011.

ACHIEVEMENTS :

1. The Department of Virology, organized Conference National Ensemble on Rabies and other Viral Encephalitis in Sept. 2011 at Haffkine Institute, Mumbai.
2. The Department of Virology, organized International Workshop Anti Microbial Resistances organized by Haffkine Institute in Nov. 2011 at Mumbai.
3. Department of Virology involve in project Laboratory based influenza (SARI/IL) Surveillance plan India: under IDSP Avian Influenza Lab network.
4. Department of Virology has initiated two collaboration projects:
 - a. "Prophylactic and therapeutic effect of virgin coconut oil and omega three rich vegetable oil blends on neuro-inflammation" – with Nirmala Niketan College of Home Science, University of Mumbai.
 - b. "Design, Synthesis And Evaluation Of Novel Neuraminidase Inhibitors In Treatment Of Influenza (H1N1)" – with Principal K. M. Kundhani College of Pharmacy, Mumbai.

DEPARTMENT OF CLINICAL PATHOLOGY

Training Activities

A) Training Programs conducted

Department actively participated in Annual Biotechnology Training programme. Students were trained in various microbiological and serological test including tests for diagnosis of *Mycobacterium tuberculosis* and *MRSA*.

Training was provided to senior laboratory assistants in various tests carried out in Clinical pathology Department. In the training program medical officers, scientific officers and laboratory technicians actively participates.

Sr. No.	PG - Guide	Recognition for subject & degree	Affiliating University
1.	Dr. Shashikant Vaidya	M.Sc. Applied Biology and Microbiology	Mumbai

B) Training programs attended :

1. Ms. Suvarna Joshi, SRF successfully completed one month training at P.D. Hinduja Hospital and Medical research centre, Mumbai on *Mycobacterium tuberculosis* especially in processing of clinical samples, liquid culturing MGIT, drug sensitivity testing and molecular techniques.
2. Ms. Suvarna Joshi, SRF participated in one day Instrumentation Workshop held at C.B. Patel Research Center & School of Science, NMIMS.
3. Ms. Suvarna Joshi, SRF successfully completed one month training at Sir J.J. Group of Hospital, Mumbai on *Mycobacterium tuberculosis*. Here she was trained in Microscopy, processing of samples, biochemical test, drug sensitivity testing.
4. Ms. Suvarna Joshi, Senior Research Fellow, Department of Clinical Pathology, attended 'Research Methodology Workshop' organized by MUHS, Nashik from 28th November to 3rd December 2011.

5. Mr. Arunagiri Subramnian, Senior Research Fellow, Department of Clinical Pathology, attended 'Research Methodology Workshop' organized by MUHS, Nashik from 28th November to 3rd December 2011.
6. Mr. Arunagiri Subramnian, SRF, Participated in the National Workshop on Molecular subtyping of microbes using Pulsed Field Gel Electrophoresis at ICAR Research Complex for Goa, Old Goa from 20-23 August 2011.
7. Dr. S. P. Vaidya, Assistant Director, attended training programme on "Intellectual Property Rights and WTO issues" conducted by patent Facilitating Centre of Technology Information Forecasting and Assessment Council (TIFAC) sponsored by Department of Science and Technology from 22-26th August 2011 in Teri Gram, Gurgaon, and Haryana.
8. Dr. S. P. Vaidya, Assistant Director, attended training programme on "Advanced Techno-management programme for scientist" conducted by Administrative Staff College of India, sponsored by Department of Science and Technology from 2nd January-3rd February 2012 in Bella Vista, Hyderabad.
9. Dr. S. P. Vaidya, Assistant Director, attended training programme on "Scientific Writing" conducted by NIIRH, Mumbai, sponsored by World Health Organisation From 2nd January-3rd February 2012.

Research Projects in progress

A) Research projects (Ph.D. Students)

1. "Assessment of novel molecular methods for diagnosis of Tuberculosis".
Student-Ms. Suwarna Joshi
Guide- Dr. Abhay Chowdhary
The project aims to standardize the Loop mediated isothermal PCR (LAMP) assay as a rapid diagnostic tool for pulmonary and extra pulmonary tuberculosis
2. "Molecular characterization of Methicillin resistant Staphylococcus aureus MRSA) isolates in Mumbai".

Student- Mr Arunagiri Subramnian

Guide- Dr. Ranjana Deshmukh

Study aims on molecular characterization of the MRSA isolates by targeting *macA* gene and Staphylococcal Cassette chromosome typing by PCR based methods.

3. "Assessment of effects of sub-inhibitory concentrations of antibiotics on *Pseudomonas aeruginosa*."

Student- Mr. Omkar Lele

Guide- Dr. Abhay Chowdhary

Pseudomonas aeruginosa is versatile pathogen and have ability to thrive in different environments. The pathological effects due to this bacterium are attributed to number of characteristics like virulence factors, quorum sensing, adaptive resistance etc. The effects of SIC's of different classes antibiotics shall be seen on *P. aeruginosa*, since very limited data is available regarding the effects of currently used drugs in treatment.

4. "Plant mediated synthesis of silver nano particles of *Tylophora indica* and its anti-Microbial activity."

Student-Ms. Richa Lakhotia

Guide- Dr. Abhay Chowdhary

Aim of the research project is to develop silver nano particles of *Tylophora indica* and to check its antibacterial properties in vitro.

B) Research projects (M.Sc. Student) in progress

Molecular characterization of *Mycobacterium tuberculosis* with respect to Fluoroquinolones resistance.

Student- Ms. Jaishankar Sharma

C) Short term Research Internship Program

1. Comparison of Three Methods of Extracting *Mycobacterium tuberculosis* DNA from Processed Sputum Sample and Detection of *Mycobacterium tuberculosis* by Conventional Polymerase Chain Reaction

Student-Mr. Sunny Taneja, Department of Biotechnology and Bioinformatics, Vikas College of Arts and Science, Vikroli. Mumbai.

Guide- Dr. Abhay Chowdhary

2. Evaluation of *in vitro* Anti-Tuberculosis Activity of Extracts of *Solanum surattense*, *Cinnamomum verum* using Microscopic Observation of Drug Susceptibility (MODS) Assay.

Student-Mr. Jigar Trivedi, Department of Biotechnology and Bioinformatics, Viva college of Biotechnology, Virar

Guide- Dr. Abhay Chowdhary

3. Study of antibiogram pattern of MRSA isolates.

Student-Ms. Seema Yadav, Department of Biotechnology and Bioinformatics, Ramnarain Jhunjhunwala, Ghatkopar, Mumbai.

Guide- Dr. Abhay Chowdhary

STRIP in progress :

1. Antibacterial and Anti-infective activity of Caffeine and its synergism with Antibiotics.

Student-Mr. Rohit Chakravarti, Department of Biotechnology and Bioinformatics, Padmashree D.Y Patil College University.

Guide- Dr. Abhay Chowdhary

2. Evaluation of immunomodulatory effect of *Cinnamomum verum* and *Solanum surattense*.

Student-Ms. Nikita Prabhu, Department of Biotechnology and Bioinformatics, Padmashree D.Y Patil College University.

Guide- Dr. Abhay Chowdhary

3. Evaluation of anti-tuberculosis of *Cinnamomum verum* and *Solanum surattense*.)

Student-Ms. Mubina Mamawala, Department of Biotechnology and Bioinformatics, Padmashree D.Y Patil College University.

Guide- Dr. Abhay Chowdhary

D) Paper Presentation

1. Ms. Suvarna Joshi, SRF, Presented a poster & won best poster presentation award entitled “ Evaluation of *in vitro* Anti-Tuberculosis Activity of Extracts of *Solanum surattense*, *Cinnamomum verum* using Microscopic Observation of Drug Susceptibility (MODS) Assay” in Symposium AMR 2011 held on 11th -13th November 2011 at Haffkine Institute.
2. Ms. Suvarna Joshi, SRF Presented a paper on “Comparison of Three Methods of Extracting *Mycobacterium tuberculosis* DNA from Processed Sputum Sample and Detection of *Mycobacterium tuberculosis* by Conventional Polymerase Chain Reaction” in teaching pathologist committee meeting held on 23 January 2012 in Haffkine Institute.
3. Mr. Arunagiri Subramainian, SRF presented a paper entitled “ Study of antibiogram pattern of Methicillin Resistant *Staphylococcus aureus* (MRSA) isolates in Mumbai” at the International Workshop on Antimicrobial Resistance (AMR-2011) organized by ASM, ESCMID, IAMM and HITRT at Haffkine Institute, Mumbai held on 11th -13th November 2011.
4. Mr. Omkar Lele presented a paper entitled “Plant mediated synthesis of silver nano particles of *Tylophora indica* and its antimicrobial activity “in Symposium AMR 2011 held on 11th -13th November 2011 at Haffkine Institute.
5. Dr S. P. Vaidya, Assistant Director, presented a paper entitled “Relationship between *rpoB* mutations and minimum inhibitory concentrations of Rifampicin in Multi drug resistant strains of *Mycobacterium tuberculosis* in conference conducted by International Union against Tuberculosis and Lung Diseases in Hong Kong in 11-13, July 2011.

E) Conferences /symposia attended:

1. Mr Omkar Lele, SRF and Miss Suvarna Joshi, SRF attended a meeting conducted by Foundation for Medical Research on Wednesday 08th February 2012 focusing on solutions for Tuberculosis control in Mumbai at Holy Family Hospital, Bandra (W), Mumbai.

2. Mr Arunagiri Subramnian, SRF Participated in the International Conference on "Regulatory Network Architecture in Bacteria" organized by SASTRA University, Thanjavur, in association with Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram from 9-11 March 2012.
3. JRF, SRF and scientific staff of the department attended the Symposium AMR 2011" and "NERVE" held at Haffkine Institute.
4. Dr S. P. Vaidya, Assistant Director participated in the International Conference on "HIV Congress2012" in Mumbai from 16-18th March, 2012.
5. Dr S. P. Vaidya, Assistant Director participated in the Conference on "Microbial control" organized by Automed Company in Mumbai in November 2012.

F) Organization of Scientific Symposia/Conferences/ meetings:

1. Department assisted in organization of symposium NERVE 2011 (27th September 2011), symposium AMR 2011 (11th -13th November 2011) and one day symposium on Maharashtra biotechnology day (14th November 2011) at Haffkine Institute.
2. Department conducted Institutional Ethics Committee and Institutional Animal Ethics Committee meetings. This year total 5 meetings were conducted and 44 research proposals were reviewed by the committee.

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
- 2) Serology
- 3) Testing of commercial synthetic compounds for antibacterial, antifungal and antituberculosis activity.
- 4) Diagnostic Mycology.

- 5) Operation theatre monitoring
- 6) Routine haematological examination.
- 7) Urine and stool routine and microscopy.
- 8) Peripheral smear for malarial parasites.
- 9) Histopathological examination of surgical specimens and biopsies.

TESTING			
Sr. No.	Section	Paid Tests	Free Tests
1.	Haematology & Other (HB, CBC, ESR, MP, Urine R/M)	1335	603
2.	Serology (Widal, Weil-Felix, Brucella)	712	9
3.	Microbiology (OT Swab, Aerobic Culture, AST)	859	4

As NDM I centre bacterial isolates from Latur Medical College were identified and drug sensitivity pattern of these isolates was determined.

Guest Lectures

1. Dr. S. P. Vaidya was invited as examiner for M.Tech. (Biotechnology) practical examination at Padmashree DY Patil College.
2. Dr. S. P. Vaidya was invited as guest lecturer at Allana institute of management and Aruna M. Shah College of management for training and development subject for third semester MBA course.

DEPARTMENT OF CLINICAL PATHOLOGY (Dispensary)

1. Annual Medical check - up was started for HITRT employees & students (JRF & SRF) on 7th April 2011 on the occasion of 'WHO Day'.
During the annual medical check- up following investigations were carried out:
I : CBC, ESR, Urine R/M, SGOT, SGPT, Sr. Bilirubin, Sr. Creatinine, BUN, Fasting Blood sugar, Sr. Cholesterol, Sr. Triglycerides.
Detailed Medical Examination and disease diagnosis was done. Also treatment & diet was advised to employees.
Total number of 122 employees and 25 students were assessed during annual medical check-up.
2. Dispensary provided routine OPD facility for HITRT employees & their family members. This includes disease diagnosis, treatment, counseling & dispensing of medicines.
Total 932 patients were examined this year.
3. Pre exposure & post exposure immunization is provided for Rabies & Tetanus on regular basis.
Number people immunized with anti rabies vaccine and Tetanus toxoids are 12 and 22 respectively.
4. Fitness assessment for human volunteers was done for "Mosquito Repellency Test" project of Zoonosis Department.
Number of human volunteers assessed was 36.
5. Assessment of Medical Reimbursement bills for HITRT employees and their family members was done.
Total 346 Medical Reimbursement bills were assessed.
6. Participated in Annual Medical Check- up for HBPCCL employees which were conducted in Dec 2011 to Jan 2012 and total employees were checked was 329.
7. Dr. Sandesha N. Pashte and Dr. Shital U. Mane, Medical officers participated in Interdepartmental Training Programme in June 2011, Annual Biotechnology Training Programme in 2012 and Snake handling workshop in Jan 2012 in Haffkine Institute".
8. Following topics were discussed in training programme- "Immunity", "Malaria "Waterborne Diseases", "Autoimmunity & Autoimmune Disorders" and "Management of Snake Bite."
9. Dr. Shital U. Mane has delivered a lecture on "First- Aid" on Haffkine Foundation day on 10th August 2011.

DEPARTMENT OF BIOCHEMISTRY

Training activities:

1. Conducted Hands on workshop of Enzymology:
Batch 1- 32 participants in May 2011.
Batch 2- 30 participants in Sept 2011.
2. Delivered Lectures in Annual Biotechnology Program 2011.
Demonstrations carried out for the undergraduates' students.
3. Attended the workshop on "Research Methodology" at RMD Research Centre, Valsad, Gujarat held in January 2012 by Mrs. P.V. Ansulkar, SSO & Ms.Amruta Naik, SO.
4. Attended the first International and fourth National Conference on HIV/AIDS "HIV SCIENCE 2012" at Chennai in January 2012 by Mr. Shreevadhan Rajopadhye, SRF.
5. Trained (3) three Biochemistry STRIP students and (12) twelve interdepartmental STRIP students.

Sr. No.	PG - Guide	Recognition for subject & degree	Affiliating University
1.	Dr. Rosalind Marita	M.Sc. & Ph.D. Biochemistry	University of Mumbai

List of Departmental STRIP Projects-

Sr. No.	Name	Guide	Project title
1.	Mr.Sreekant Paniker	Dr. Abhay Chowdhary	Phytochemical analysis and anti-inflammatory activity of <i>B. diffusa</i> .
2.	Mr.Omkar Juvekar	Dr. Abhay Chowdhary	Estimation of antioxidant and anti-angiogenic activity of Indian Honey.
3.	Ms.Hiral Solanki	Dr. Abhay Chowdhary	Estimation of anti oxidants and anti angiogenic activity of Indian Honey.

List of Inter Departmental STRIP Projects:

Sr. No	Name	Departments	Project title
1.	Ms.Reema Rawtani	Virology/ Biochemistry	Antioxidant and Anti-cancer activity of Plant extracts
2.	Ms. Kiran Ramchandani	Virology/ Biochemistry	Antioxidant and Anti-cancer activity of Plant extracts
3.	Ms.Khusbu Sayta	Virology/ Biochemistry	Antioxidant and Anti-cancer activity of Plant extracts
4.	Ms. Merine Mammen	Virology/ Biochemistry	Anti-Viral activity of Plant extracts
5.	Ms. Neelam Gupta	Virology/ Biochemistry	Anti-Viral activity of Plant extracts
6.	Ms.Shruti Mahale	Biochemistry/ Snake Farm	Biological activity of different type of snake venom
7.	Ms. Sheetal Mule	Biochemistry/ Snake Farm	Biological activity of different type of snake venom
8.	Ms.Rujuta Dhobale	Biochemistry/ Snake Farm	Biological activity of different type of snake venom
9.	Ms. Rishita Shetty	Biochemistry/ Snake Farm	Biological activity of different type of snake venom
10.	Mr. Nakul Shah	Virology/ Biochemistry	Immuno+ Antioxidant activity of plant Extracts
11.	Ms. Shruti Sharma	Virology/ Biochemistry	Anti- inflammatory and analgesic activity of plant extracts
12.	Ms. Rushna Shaikh	Toxicology/ Biochemistry	Anti- inflammatory and analgesic activity of plant extracts

Research Projects Completed:

1. Estimation of Antioxidant activity of Suvarnaraj Vangeshwar. Principal Investigators- Dr.Abhay Chowdhary
Dr. S.S. Savarikar, Prof. & Head, Dept of Rasashastra, Podar Ayurvedic Medical College, Worli, Mumbai.
Co- Investigators -Mrs. P.V. Ansulkar, Ms. Amruta Naik and Dr. Aditi Kulkarni, Associate Prof., Dept of Rasashastra, Podar Ayurvedic Medical College, Worli, Mumbai.
2. Study of Phytochemical analysis and estimation of antioxidant activity of Indian Honeys.
Principal Investigators - Dr. Abhay Chowdhary, Dr.Sunita Deshpande, Adjunct Professor, Department of C.P., Haffkine Institute.
Co- Investigators- Mrs. P.V. Ansulkar, Ms.Amruta Naik.

3. Screening of antioxidant activity of Benzothiozole derivatives.
Principal Investigators - Dr. Abhay Chowdhary, Dr .A.S. Bobade.
Co-Investigators -Mrs. P.V.Ansulkar, Ms.Amruta Naik & Ms.Vrushali Patil.
4. Evaluation of antioxidant and anti-angiogenic activity of Indian Honey.
Principal Investigators - Dr.Abhay Chowdhary, Dr.Sunita Deshpande,
Adjunct Professor, Department of C.P., Haffkine Institute.
Co- Investigators -Mrs. P.V. Ansulkar & Ms. Amruta Naik.
5. Study of Phytochemical analysis and anti-inflammatory activity of Indian Medicinal Plants.
Principal Investigator – Dr.Abhay Chowdhary
Co- Investigators - Mrs. P.V. Ansulkar & Ms. Amruta Naik.
6. Ph.D. project: “Biochemical Parameters in HIV-TB Co-infection”
Principal Investigators– Dr. S.P. Dandekar, Prof. & Head, Department of Biochemistry, G.S. Medical College & KEM Hospital, Parel, Mumbai and Dr. Abhay Chowdhary
Co-Investigators - Dr. Amar Pazare, Prof. & Head, Department of Medicine G.S.
Medical College & KEM Hospital, Parel, Mumbai. Dr. Preeti Mehta, Prof & Head, Department of Microbiology, G.S. Medical College & KEM Hospital, Parel, Mumbai and Dr. Amita Athavale, Prof & Head, Department of Chest Medicine & Environmental Pollution & Research Centre, Seth G.S. Medical College & KEM Hospital, Parel, Mumbai.

Papers Presented:

1. Ms. Amruta Naik has presented a paper entitled “ Evaluation of the Antioxidant and Anti-Angiogenic activity of Indian Honeys in Comparison with Gold Standard *Manuka* Honey From Newzeland” in International Conference on Cancer Prevention, Diagnosis and Treatment in Jan 2012 in Jaipur.
2. Mr. Srikant Paniker, STRIP student has presented a paper entitled “Evaluation of in-vitro anti-inflammatory and antioxidant activity of *B. diffusa*” in Conference on Chemistry of phyto-potentials: Health, Energy and Environmental Perspectives; Nov, 2011 in Agra.

3. Ms. Heeral Solanki, STRIP student “Comparative study of phytochemical constituents and antioxidant activity of Indian Honeys” in International Conference on Recent Advances in Ayurvedic Pharmaceutics, 2012 in Varanasi.

Paper Publications:

1. Assessment of Hypolipidemic activity of *Anethum sowa* seeds against Triton X-100 Induced Hyperlipidemia in Wistar Rats: A preliminary Study, Bulletin of Haffkine Institute, vol.13-no 2: April 2011. P. Athalekar, M. Ojha, P. V. Ansulkar, A. Naik, M. Ghag Sawant and A.S. Chowdhary.
2. Antioxidant and Anti- Microbial activities of Pyrazoylk-Benothiazole derivatives using Vilsmeier-Haack Reaction. Rasayan Journal of Chemistry, vol 5- no.1: Jan-march 2012. A. G Yadav, V. N. Patil, A. L. Asnodkar, A.A. Naik, P.V. Ansulkar, A.S. Bobade and A.S. Chowdhary.

Testing Activities:

1. “Estimation of Glycemic Index of Partially Refined Yellow Sugar and Plantation White Sugar” for Parle Products Pvt. Ltd., Vile Parle, Mumbai.
2. Annual medical check-up for 326 employees of Haffkine Institute and HBPCL.
3. Total Blood samples processed for Biochemical analysis: - 335
4. Total Renal & Gall Bladder Stone samples processed for quantitative chemical analysis: - 51.

DEPARTMENT OF CHEMOTHERAPY

TRAINING ACTIVITIES

In the year 2011-12 department has started the “Analytical Training for Instrumentation” course for three days.

Details of the “Analytical Training for Instrumentation” course:

Batch	Period	Number of Students
First	26-04-2011 to 28-04-2011	16
Second	11-05-2011 to 13-05-2011	15
Third	31-05-2011 to 02-06-2011	28

RESEARCH PROJECTS:

Ongoing Projects of PhD students

Sr. No.	Title of the Project	Name of student	Research Guide
1.	Synthesis and study of Heterocyclic compounds as possible anti microbial agent”	Mr. Ashish Arsondkar	Dr. Anil S. Bobade
2.	Synthesis and study of Heterocyclic compound as possible anti therapeutic agents”.	Ms. Vrushali N. Patil	Dr. Anil S. Bobade
3.	Evaluation and synthesis of new biological entities as possible anti bacterial and anti fungal agent”	Ms. Neha Mishra	Dr. Anil S. Bobade

Short Term Research Internship Program (STRIP):

Sr. No.	Title of the Project	Name of student	Research Guide
1.	Synthesis of unsaturated cinnamic acid by using knoevengel reaction and characterize the product by spectral analysis.	Mr. Ravindra G. Suryawanshi	Dr. Anil S. Bobade
2.	Synthesis of chalcone, chalcone epoxide and derivative.	Ms. Trupti S. Kolekar	Dr. Anil S. Bobade
3.	Synthesis of triazole-6 Methoxy benzothiazole agent.	Mr. Vitthal M. Padmimkar	Dr. Anil S. Bobade

4.	Synthesis of oxadiazole derivative as a possible therapeutic agent.	Ms.Priyanka A. Naigade	Dr. Anil S. Bobade
5.	Synthesis and biological evaluation of triazolo benzothiazole.	Mr.Amit A. Jadhav	Dr. Anil S. Bobade
6.	Synthesis and study of 5, 6Disubstituted-2-(N, N-Dimethyl Thiocarbamido) benzothiazole.	Mr. Nirmal V. Aanasahab	Dr. Anil S. Bobade

Research Projects in Progress:

Project entitled is "Synthesis of new 3-4 disubstituted 1, 3, 4-oxadiazole derivative and their anti-inflammatory activity" by Sushant R. Kaple under the guidance of Dr. Anil S. Bobade.

Papers published:

1. V.N Patil, A. G. Yadav, A. L. Arsondkar, A. S. Bobde, S.P. Gajbhiye, A. S. Chaudhary " 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 (1); Jan 2011.
2. Kushal H. Dhawane, Vrushali N Patil, Yogesh P Jadhav, Aashish L Arsondkar, Anil S Bobade and Abhay Chowdhary. "Synthesis and Biological Activity of Some Substituted 4-Thiazolidinones" Bulletin of Haffkine Institute 13 (2); April 2011.
3. AL Arsondkar, YP Jadhav, VN Patil, AS Bobade, SP Gajbhiye, AS Chowdhary "Pyrazolene-Benzofuran derivatives: Synthesis and Biological evaluation" International Journal of research in pharmaceutical and Biomedical Sciences (Accepted).
4. Yadav A. G, Patil V.N, Arsondkar A.L, Naik A.A, Ansulkar P.V, Bobade A.S, Chowdhary A.S, "Anti-oxidant and Anti-microbial activities of Pyrazolyl- Benzothiazole derivatives using Vilsmeier-Haack reaction". RASAYAN Journal of Chemistry, Vol.-5, No.1, Jan.-March (2012).
5. Arsondkar Ashish L, Patil Vrushali N, Yogesh Jadhav, Kushal Dawane, Bobade Anil S.Chowdhary Abhay S, "Pyrazolene-Benzofuran Derivatives: Synthesis and Biological Evaluation", International journal of research in pharmaceutical and Biomedical Sciences Volume 3 Issue 1, January 2012.

6. Neha Mishra, Vrushali Patil, Ashish Arsondkar, A.S. Bobade, Abhay Chowdhary, "Synthesize Quiniline Derivative by using Microwave irradiation" (Sent for Publication in Haffkine Bulletin).

Paper Presented In the Conference

1. Mr. Ashish Arsondkar has presented a paper entitled "Synthesis and antimicrobial evaluation of some new 5-(2-furyl)-thieno [2, 3-d] pyrimidin-4(3H)-ones derivatives" at "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.
2. Ms. Vrushali N. Patil has presented a paper entitled "Anti-Oxidant and Anti-Bacterial activity of Pyrazoyl-Benzothiazole by using Vilsmeier Haack Reaction" at "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.
3. Mr. Ashish Arsondkar has presented a paper entitled "Synthesis evaluation and characterization of the 1, 3, 4-Oxadiazole" Presented at "International conference on innovation in chemistry for Sustainable Development at Punjab University" at Chandigarh between 1st to 3rd Dec 2011.
4. Mr. Ashish Arsondkar has presented a paper entitled "Synthesis evaluation and characterization of the Triazolobenzothiazole derivatives" Presented at "International conference on innovation in chemistry for Sustainable Development at Punjab University" at Chandigarh between 1st to 3rd Dec 2011.
5. Ms. Neha Mishra has presented a paper entitled "Comparative study of Plant and Chemical Mediated Synthesized Silver Nanoparticles and their Antimicrobial activity" Presented at "Conference on Expanding Horizon in Bio-Sciences -2011" at D.Y. Patil College, Navi Mumbai on 7th December 2011.

DEPARTMENT OF TOXICOLOGY

TRAINING ACTIVITIES :

Training conducted by the staff/students of the department :

1. Lectures and practical demonstration conducted in "Annual Biotechnology Training program" from April to June 2011.
2. Organised two days workshop on "Principles and practices of laboratory animal care and ethical measures in animal experiment" from April to June 2011.

RESEARCH PROJECTS:

Short Term Research Internship programme (STRIP):

- 1) The anti-inflammatory, analgesic and anti oxidant activities of different extracts of *carumrox burghicorum*.
Student : Ms. Rushna Shaikh, MGM School of Bio medical Science, Navi Mumbai.
Guide : Dr. A.S. Chowdhary
- 2) The anti-inflammatory, analgesic and anti oxidant activities of different extracts of *Tragia involucreta var.cannabina leaves*.
Student : Mr. Anurag Killedar, Viva College, Virar.
Guide : Dr. A.S. Chowdhary
- 3) The anti-inflammatory, analgesic and anti oxidant activities of different extracts of *leave of Tylophora indica*.
Student : Mr. Bhargav Kansara, Pillai College, New Panvel.
Guide : Dr. A.S. Chowdhary
- 4) The anti-inflammatory, analgesic activity of different extracts of *Gmelina arborea*.
Student : Ms. Shruti Sharma, MGM College, Navi Mumbai.
Guide : Dr. A.S. Chowdhary
- 5) Study of bioaccumulation of heavy metals in *Mystus gulio* from Sewri mudflats.
Student : Mr. Niranjana, Padmashree D.Y. Patil College, Navi Mumbai.
Guide : Dr. A.S. Chowdhary

TESTING ACTIVITIES :

The department of Toxicology was engaged in toxicity testing of commercial samples referred by various industries and institutes. The samples for toxicity testing included drugs and related products, cosmetics, chemicals. The details are as follows:

Sr. No.	Type of test	No. of samples tested
1.	Acute oral toxicity in Mice	2

LIBRARY**AIMS AND OBJECTIVES :**

To collect, organize, search and retrieve information in the areas of prime activities of the institute i.e. Biomedical and allied sciences with a special reference to the communicable diseases.

The library subscribed to 71 specialized national and international journals from various publishers. It also added 5 new books in the fields of research conducted by the institute. With this, the total collection of library has grown to 10562 books and 27161 back volumes of journals.

The library continued to provide online scientific search and retrieval facilities to the staff, researchers and students. During the period, total 917 times the online search facility was used by the students and staff of the institute. The library also provided reference service by Telephone, Email, Post, Courier, etc. 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 10 times on the basis of Inter Library Cooperation. Similarly, 4 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.

**HAFFKINE INSTITUTE FOR TRAINING, RESEARCH AND TESTING
LIBRARY**

YEAR	2011-12
Total Titles	10562
Total Bound Volumes of Journals	27161
Number of Times the Library Collection Consulted by Users :	
Outside Visitors	1423
Staff & Students of the Institute	2460

PUBLICATIONS :

- Mhapsekar, V.D. : Library legislation in the state of Maharashtra. - Indian Journal of Information, Library and Society, Vol.24, Iss.2, 2011, p.110-117
- Mhapsekar, V.D. :Ek adarsha granthapal (Marathi)– Mumbai Sakal, 27.10.11, p.4.
- Mhapsekar, V.D.: Public library act in the state of Maharashtra. - (In 'Public libraries in ICT driven knowledge society'). – Kolkata: RRRLF, 2011, p.22-30

Appendix I

LIST OF RECOGNISED POST-GRADUATE TEACHERS

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.	Microbiology Appl.Biology Microbiology Appl.Biology Medical Microbiology	Mumbai University " " MUHS
2.	Dr. A. S. Bobade M.Sc., Ph.D.	Sr. Scientific Officer	M.Sc., Ph.D	Organic Chemistry	Mumbai University
3.	Dr. S. P. Vaidya M.Sc., Ph.D., MBA, Dipl Public Health	Assistant Director	M.Sc.	Applied Biology & Microbiology	Mumbai University
4.	Dr. Sweta Kothari M.Sc., Ph.D., MBA	Sr. Scientific Officer	M.Sc.	Applied Biology	Mumbai University
5.	Dr.(Ms.) M. Ramaiya DMLT, M.Sc., Ph.D.	Sr. Scientific Officer	M.Sc.	Applied Biology	Mumbai University
6.	Dr. (Mrs.) Rosalind Marita M.Sc., Ph.D.	Assistant Director	M.Sc. Ph.D.	Biochemistry	Mumbai University

National Visiting Scientists & Adjunct Professors in the Institute

Sr. No	Name of the scientist	Designation
1.	Dr. (Smt.) R.A. Deshmukh, M.D., Ph.D.	Visiting Scientist and Adjunct Professor
2.	Dr. H.S. Palep, M.D.	Visiting Scientist and Adjunct Professor
3.	Dr.(Smt) Mrudula A. Phadke MD, DCH, FIAP, MR. CP(UK) FRCPH(Hon), MNAMS	Visiting Scientist and Adjunct Professor

4.	Dr. (Smt.) Usha Sharma (Pharmacology), Ph.D. Medicine	Visiting Scientist and Adjunct Professor
5.	Dr. (Smt.) Jaya R. Deshpande M.D.	Visiting Scientist and Adjunct Professor
6.	Dr. Smt.S. D. Deshpande M.Sc. Ph.D.	Visiting Scientist and Adjunct Professor
7.	Dr. Rajesh V. Warke Ph.D.(Biomedical Scie.)	Visiting Scientist and Adjunct Professor
8.	Dr.(Smt.) Pratibha Chaturvedi Ph.D. (Botany)	Woman Scientist and Adjunct Professor (Dept. Of Science & Technology)
9.	Dr. Usha P. Dave	Visiting Scientist and Adjunct Professor
10.	Dr. Manohar Borkar	Visiting Scientist and Adjunct Professor

**International Visiting Scientists
&
Adjunct Professors in the Institute**

Sr. No.	Name of Scientist	Country of Origin
1.	Dr. Prakash S. Thombare	USA
2.	Dr. Lance Robert Peterson	USA
3.	Dr. Irene Bosch	USA
4.	Dr. Ellen Jo Baron	USA
5.	Dr. Deshratna Asthana	USA
6.	Dr. Harshavardhan Sheore	Australia
7.	Dr. Peter Strong	UK

Appendix IV

SHORT TERM RESEARCH INTERNSHIP PROGRAM (STRIP – 2011)

LIST OF INTERNS

Period: May 2011 – December 2011

Sr. No.	Name of Student	Institute	Degree
1.	Miss. Debarchana Saha	Jhunjhunwala College, Ghatkopar, Mumbai.	M. Sc Biotechnology
2.	Miss. Priya Hariharan	Jhunjhunwala College, Ghatkopar, Mumbai.	M. Sc Biotechnology
3.	Miss. Raksha Iyengar	Ruia College, Dadar, Mumbai.	M. Sc Biotechnology
4.	Miss. Riya Kanherkar	St. Xavier's College, C.S.T., Mumbai.	M. Sc Biotechnology
5.	Miss. Anupama Pandey	Viva College, Virar.	M. Sc Biotechnology
6.	Miss. Samruddhi Mayekar	K. J. Somaiya College, Vidyavihar, Mumbai.	M. Sc Biotechnology
7.	Mr. Vipul Thakur	Kelkar College, Thane.	M. Sc Biotechnology
8.	Miss. Supriya Shinde	Pillai's College, Panvel.	M. Sc Biotechnology
9.	Miss. Seema Yadav	Jhunjhunwala College, Ghatkopar, Mumbai.	M. Sc Biotechnology
10.	Miss. Sunny Tajane	Vikas College, Vikroli.	M. Sc Biotechnology
11.	Mr. Jigar Trivedi	Viva College, Virar.	M. Sc Biotechnology
12.	Mr. Shreekant Paniker	Pillai's College, Panvel	M. Sc Biotechnology
13.	Mr. Hiral Solanki	Viva College, Virar.	M. Sc Biotechnology
14.	Mr. Omkar Juvekar	Ruia College, Dadar, Mumbai.	M. Sc Biotechnology
15.	Miss. Rujuta Dhoble	Pillai's College, Panvel	M. Sc Biotechnology
16.	Miss. Shruti Mahale	CKT College, Panvel.	M. Sc Biotechnology

17.	Miss. Sheetal Mulye	Viva College, Virar.	M. Sc Biotechnology
18.	Miss. Rishita Shetty	Kelkar College, Thane.	M. Sc Biotechnology
19.	Mr. Anurag Killedar	Viva College, Virar.	M. Sc Biotechnology
20.	Miss. Bhargav Kansara	Pillai's College, Panvel	M. Sc Biotechnology
21.	Miss. Rama Bhatia	SIES, Sion, Mumbai.	M. Sc Biotechnology
22.	Mr. Rahul Mojidra	Birla College, Kalyan	M. Sc Biotechnology
23.	Mr. Sagar Gandigude	Birla College, Kalyan	M. Sc Biotechnology
24.	Miss. Mansi Gaonkar	Patkar College, Ville Parle.	M. Sc Microbiology
25.	Mr. Karim Kutchi	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
26.	Miss. Ekta Yadav	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
27.	Miss. Meera Clytone	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
28.	Mr. Ninad Agashe	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
29.	Miss. Manjistha Ahuja	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
30.	Miss. Shruti Railkar	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
31.	Miss. Kalika Kamath	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology
32.	Miss. Deepa Kamat	Thadomal Sahani Engineering College Bandra, Mumbai.	B.E Biotechnology

Appendix V

SHORT TERM RESEARCH INTERNSHIP PROGRAM 2011

LIST OF INTERNS

Period: January 2012 – June 2012

Sr. No.	Name of Student	Institute	Degree
1.	Mr. Jigar Talekar	Jhunjhunwala College, Ghatkopar, Mumbai.	M.Sc Biotechnology
2.	Miss. Shefali Misra	Jhunjhunwala College, Ghatkopar, Mumbai.	M. Tech Biotechnology
3.	Miss. Naitik Patel	Ruia College, Dadar, Mumbai.	M. Tech Biotechnology
4.	Miss. Namrata Yadav	St. Xavier's College, C.S.T., Mumbai.	M. Tech Biotechnology
5.	Miss. Mubina Mamawala	Viva College, Virar.	M.Sc Biotechnology
6.	Miss. Tanvee Savwant	K. J. Somaiya College, Vidyavihar, Mumbai.	B. Tech Biotechnology
7.	Miss. Sayali Savant	Kelkar College, Thane.	B. Tech Biotechnology
8.	Miss. Priyanka Godse	Pillai's College, Panvel.	M. Tech Biotechnology
9.	Miss. Nikita Prabhu	Jhunjhunwala College, Ghatkopar, Mumbai.	B. Tech Biotechnology
10.	Mr. Nitesh Singhvi	Vikas College, Vikroli, Mumbai.	B. Tech Biotechnology
11.	Mr. Rohit Chakravorty	Viva College, Virar.	M.Sc Biotechnology
12.	Miss. Chaitali Patil	Pillai's College, Panvel	B. Tech Biotechnology
13.	Miss. Ipsita Banerjee	Viva College, Virar.	M.Sc Biotechnology
14.	Miss. Mamta Bhatia	Ruia College, Dadar, Mumbai.	B. Tech Biotechnology
15.	Miss.Nivedita Choudhary	Pillai's College, Panvel	B. Tech Biotechnology
16.	Miss. Sugandha Sinha	Sam Higginbotham College, Lakhnow.	B. Tech Biotechnology



