Tribhuvan University
Central Department of Microbiology
(Estd. 14 November 1990)
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ANNUAL REPORT

"The experience from the past to today"

# ANNUAL REPORT
## 2074/075

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# ANNUAL REPORT

## FY 2074/075 (2017/018)


**Tribhuvan University**

**Institute of Science and Technology**

**Central Department of Microbiology**

**(Estd. 14 November 1990)**

# Report Preparation Team

Dr. Megha Raj Banjara, Head of Department and Associate Professor
Prof. Dr. Anjana Singh, Professor
Prof. Dr. Prakash Ghimire, Professor
Mr. Binod Lekhak, Associate Professor
Ms. Reshma Tuladhar, Lecturer
Dr. Devraj Joshi, Lecturer
Dr. Komal Raj Rijal, Lecturer
Mr. Nabaraj Adhikari, Lecturer
Mr. Upendra Thapa Shrestha, Lecturer
Mr. Navaraj Karki, Section Officer
Mr. Ramesh Ghimire, Main Account Assistant

# Executive Summary

This annual report summarizes the different activities conducted and progress made by the Central Department of Microbiology, Tribhuvan University in the fiscal year 2074/2075 (15 July 2017 to 15 July 2018). Central Department of Microbiology has 3 Professors, 2 Associate Professors, and 9 Lecturers. The department is providing administrative services through eight administrative staff. There are six laboratory support staff in the department. The department has 30 students enrolled in the first semester of M.Sc. programme every year. The proportion of female students in the M.Sc. programme increased every year in last three years. In case of Ph.D. microbiology programme, in academic year 2074/075, 2 male and 2 female students were enrolled. The department purchased few laboratory equipments in FY 2074/075. The teachers of the department involved in national and international activities including academic and consultancy services. One PhD and 27 M.Sc. students from the department were graduated in microbiology in FY 2074/075. The faculties of the department published 36 research articles in the national and international journals in this fiscal year.

# Table of Contents

# Background

Central Department of Microbiology established in 1990 under Institute of Science and Technology (IOST) at Tribhuvan University is providing advanced level Microbiology education in the country. The department is offering Master's and Ph. D. Degree courses in Microbiology. Since its establishment, department has been able to produce more than 558 Masters graduates and more than 6 doctoral level graduates with almost 30 graduates completing masters and a doctoral graduate every year. The department is enriched with highly qualified, skillful and competitive faculty members having specializations in various fields of microbiology: medical, public health, biotechnology, environmental, food and agriculture microbiology. In addition to the expert level faculties, department also has good support level staff in the laboratory, administration and finance to support departments day to day operation of teaching learning and research activities.

Masters level Microbiology course of Tribhuvan University has been designed and timely revised in such a way that it has been able to include global developments in science and technology in the curriculum. Initially for first 15 years, the Masters course was based on annual system, which was revised in 2013 to move on semester-based system. The course from the very beginning has made provision of a compulsory dissertation based on the short original research, which student is supposed to complete with supervision of the faculty supervisor; providing opportunity to learn research methodology and document research findings in the form of a thesis and or original research published in a peer reviewed journal. Recently, there is increasing trends of publishing the articles in national and international journals. The department also encourages the faculties for research and grant applications, as and when available. The department from its beginning has been able to conduct, research in milk, meat, water, other foods, medical/health particularly in vector borne diseases, vaccines, laboratory capacity assessment and strengthening, conducting trainings in quality assurance systems, conducting training on malaria microscopy, climate change and its impact on vector borne and water borne diseases, assessment of antimicrobial use and resistance status in the country in collaboration with the different agencies of the Government and UN agencies.

The department has its own building with teaching/demonstration rooms and

teaching laboratory equipped with basic instruments required for day to day student experimentations. Internet and small departmental library facilities are added assets in the department for research activities.

This annual report summarizes the different activities conducted and progress made by the department in fiscal year 2074/2075 (15 July 2017 to 15 July 2018). We have presented human resource capacity of the department, academic progress of the department including pass rate trend analysis, academic programs, educational pedagogy, physical structure status, activities of the faculties, students graduated in the fiscal year, and publications of articles from the department in national and international journals.

## Human Resource Capacity of the Department

Central Department of Microbiology has 3 Professors, 2 Associate Professors, and 9 Lecturers. Six faculties have PhD degree and most of others are in the process of completion of their PhD degree (Details are in Annex-I).

**Table 1: Teaching faculties in the department, FY 2074/075**

| Particulars | Total | Male | Female | PhD | Non-PhD |
|---|---|---|---|---|---|
| Professors | 3 | 2 | 1 | 3 | - |
| Associate Professors | 2 | 2 | - | 1 | 1 |
| Lecturers | 9 | 4 | 5 | 2 | 7 |
| Teachers on leave | 5 | 1 | 4 | - | - |

The department is providing administrative services through eight administrative staff. There are six laboratory support staff in the department (Annex-II).

**Table 2: Administrative and laboratory staff in the department, FY 2074/075**

| Particulars | Total | Male | Female |
|---|---|---|---|
| Officer level | 1 | 1 | - |
| Non-officer level | 7 | 4 | 3 |
| Laboratory support staff | 6 | 5 | 1 |

## Academic Enrollment

**Student enrolment trend:** In every academic year, the department has 30 students enrolled in the first semester of M.Sc. programme. In the following semesters, there was drop out of some students. The proportion of female students in the M.Sc. programme was more every year than male students. The proportion of female students in the M.Sc. programme increased every year in last three years.

In case of Ph.D. microbiology programme, in academic year 2074/075, 2 male and 2 female students were enrolled.

**Table 3: Level wise enrolment trend analysis of the last three years disaggregated by female**

| Year | M.Sc. | | Ph.D. | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| 2072/073 | 13 | 17 | - | - |
| 2073/074 | 7 | 23 | - | 2 |
| 2074/075 | 8 | 22 | 2 | 2 |

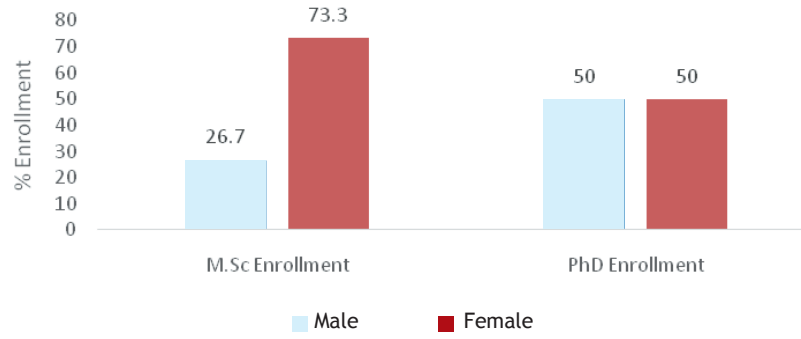



**Figure 1:** Gender ratio(%) of students' enrollment in FY 2074/075 for M.Sc. and PhD study

**Pass rate trend:** The pass rate trend analysis showed that the pass rate of the students is greater than ninety percent every year. Pass rate is relatively high in female students than the male students.

**Table 4:** Pass rate trend of the last three years of M.Sc. students disaggregated by gender

| Year | Semester | Total Students | | Passed Students | |
|---|---|---|---|---|---|
| | | Male (%) | Female (%) | Male (%) | Female (%) |
| 2072/073 | First | 11 (44.0) | 14 (56.0) | 11 (100.0) | 14 (100.0) |
| | Second | 11 (44.0) | 14 (56.0) | 10 (90.9) | 14 (100.0) |
| | Third | 11 (44.0) | 14 (56.0) | 10 (90.9) | 14 (100.0) |
| | Fourth | 11 (44.0) | 14 (56.0) | Result not published | Result not published |
| 2073/074 | First | 7 (23.33) | 22 (76.66) | 6 (85.71) | 21 (91.30) |
| | Second | 7 (25.0) | 21 (75.0) | Result not published | Result not published |
| 2074/075 | First | 8 (26.66) | 22 (73.33) | Result not published | Result not published |

## Academic Programs

Central Department of Microbiology offers courses on M.Sc. and Ph.D. degree in Microbiology. The course of Ph.D. Microbiology has been scheduled for three years with first two semesters courses and dissertations for other semesters. The course of M.Sc. Microbiology has been divided into four semesters within two academic years. The first semester course covers the disciplines of General Microbiology, Immunology, Microbial Genetics, Microbial Biochemistry and practical on these courses. The second semester offers track selection among four different disciplines of Microbiology for specialization. Among four disciplines from second semester the department has offered Medical Microbiology and Public Health Microbiology. The fourth semester is completely skill development and research oriented that includes internships and dissertation.

## Educational Pedagogy

There is close communication between the student and teacher. The class room teaching is divided into theoretical subject matter conducted in the class room as well as practical content delivered in the laboratory. The class rooms are equipped with LCD-projector, Overhead projector, and white board. The students also visit laboratories and industries. The students are given enough opportunity to address their query in the subject matter. Class assignment, project work, internal assessment and final examination will be conducted to evaluate the students. The fourth semester of M.Sc. is completely skill development and research oriented

that includes internships and dissertation.

## Physical Progress

There are no any physical infrastructure development activities in the department during the FY 2074/075. The department purchased and maintained the following equipment/instruments:

**Table 5:** List of equipments/instruments purchased or maintained by the department

| S.N. | Equipments/Instruments | Purchased/ Maintained Quantity |
|---|---|---|
| 1. | Autoclave (digital) | 1 |
| 2. | Digital Balance (3 digit, PH320) | 1 |
| 3. | Microcentrifuge | 1 |
| 4. | Incubator | 2 |
| 5. | Research Centrifuge (Remi) | 1 |
| 6. | Gel Rocker Orange India | 1 |
| 7. | UV-Visualization Basic Transilluminator | 1 |
| 8. | Micropipettes of different capacities | 4 |
| 9. | Maintenance of distillation plant | 1 |

The department purchased few books required for the students. The department requested Central Library to purchase reference books for M.Sc. microbiology.

## Department Activities

- The meeting of teachers of Central Department of Microbiology approved the "Strategic Plan for Central Department of Microbiology" on 28 Ashad, 2075.
- Second Semester Syllabus for PhD in Microbiology from Tribhuvan University was approved by Departmental Research Committee of Central Department of Microbiology on 31 Ashad, 2075.

## Academic Promotion and Progresses

**Academic Promotion:** Two faculty members Dr. Prakash Ghimire and Dr. Megha Raj Banjara have been promoted to professor and associate professor of Microbiology respectively.

**Academic Progresses:** Similarly, two faculty members had completed their PhD studies and joined the department.

- Dr. Dev Raj Joshi had completed his PhD in Environmental Science (Microbiology) from University of Chinese Academy of Sciences, Beijing, China in 2017 and joined the department from 19 Shrawan, 2074.


- Dr. Komal Raj Rijal, joined the department after completion of his PhD from the Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand from 17 Ashad, 2075.

- Ms. Reshma Tuladhar has joined the department after completion of her lab works for PhD studies from 13 Falgun 2074.

## New Faculty Appointments

Two new faculties; Mr. Upendra Thapa Shrestha and Mr. Nabaraj Adhikari have been appointed as lecturers in Central Department of Microbiology, TU from 16 Shrawan 2074.

# TUJM Publication

Tribhuvan University Journal of Microbiology (TUJM)-Volume 4 (1) published on the occasion of Microbiology day on 28 Kartik, 2074 (14 November, 2017).

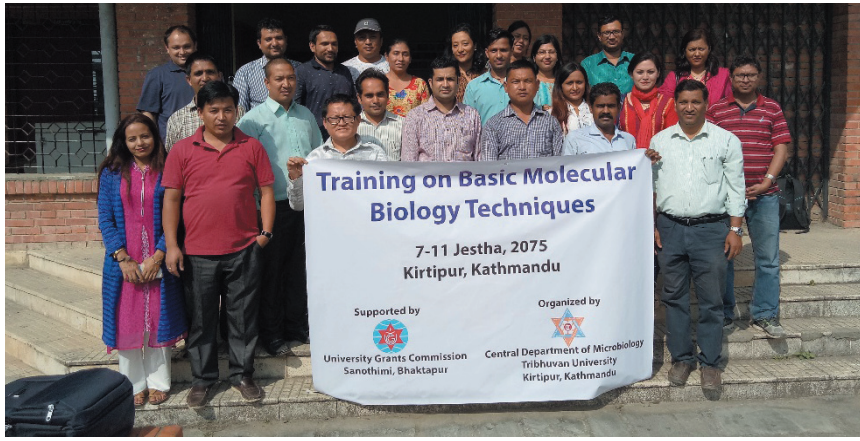

# International Activities of Faculties, FY 2074/075

- Prof. Dr. Anjana Singh had participated on her PhD student's presentation on Important human pathogen *Mycobacterium tuberculosis* on 6th International Conferences on "Recent trends in Life Sciences" at Ahmendnagar, India on December 29-30, 2017.
- Prof. Dr. Anjana Singh had presented her research work in South Asian Biotechnology Conference, Srilanka, Colombo, on 28-30 March, 2018.

- Prof. Dr. Prakash Ghimire attended as an Examination Committee Member for PhD viva voce examination at Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand from 2075-2-14 to 2075-2-19.
- Prof. Dr. Prakash Ghimire participated on consultative meeting held on WHO-SEARO New Delhi, India on strengthening of the research capacity in Nepal from 2075-3-10 to 2075-3-15.
- Dr. Megha Raj Banjara, Head of Department had participated as an Expert on TDR-WHO (World Health Organization Special Program for Research and Training on Tropical Diseases) Expert meeting on Post Visceral Leishmaniasis elimination phase in the Indian subcontinents organized by Freiburg University, Germany on October 2-4, 2017.
- Mr. Upendra Thapa Shrestha and Mr. Nabaraj Adhikari, faculty members from the department participated at the Malaria Research Training Course on 26 February - 2 March, 2018 at Nha Trang University, Vietnam organized by Menzies School of Health Research, Australia and Institute of Tropical Medicine, Antwerp under APMEN (Asia Pacific Malaria Elimination Network) project.

# Trainings and Workshops

- Central Department of Microbiology, Kirtipur, Kathmandu, Nepal successfully organized "Training on Basic Molecular Biology Techniques" at Central Department of Microbiology, Tribhuvan University on 7-11 Jestha, 2075 (21-25 May 2018). Altogether twenty participants from different B.Sc. running colleges have been trained in the program. The program was financially supported by University Grants Commission (UGC), Sanothimi, Nepal.




- Mr. Upendra Thapa Shrestha and Mr. Nabaraj Adhikari had participated on national workshop on "Approach to diagnosis of fungal infections/mycoses" from Ashad 27-31, 2075 (11th -15th June 2018) at Department of Microbiology, Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal MCOMS, Deep campus) organized by Department of Microbiology, Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal.

- Central Department of Microbiology and Menzies School of Health Research, Australia have jointly organized Workshop on"Community and Facility Assessment to determine Populations at Risk of Malaria and Primaquine Induced Haemolysis in Nepal" ACROSS Training Nepal, on Ashad 4-8, 2075 (June 18-22, 2018), Mahendra Nagar, Kanchanpur (APMEN Project).


- The Experts from Menzies School of Health Research, Australia have organized one day Molecular Biology Training (DNA extraction from Human Blood and Malaria parasite using Qiagen Kit) under the project "Community and Facility Assessment to determine Populations at Risk of Malaria and Primaquine Induced Haemolysis in Nepal" ACROSS Training Nepal, on Ashad 9, 2075 (June 23, 2018) at Central Department of Microbiology, TU, Kirtipur, Kathmandu.

# Academic activities in Central Department of Microbiology, TU

Many experts and academicians from international universities had delivered their guest lectures at Central Department of Microbiology TU.


Group photo session of faculties and students of CDM, TU with Dr. RajashreePatwartan, HV Desai College, Pune University, Baisakh 27, 2075 (May 10, 2018)

Dr. Rajashree Patwartan, HV Desai College, Pune University giving guest lecture on Immune Responses to fectious diseases at CDM, TU, Baisakh 27, 2075 (May 10, 2018)

Dr. Bikash Shakya, a former student of CDM, TU-15th Batch and a Post DOC scholar at Stanford University is delivering his guest lecture at CDM Seminar Hall, Jestha 6, 2075 (May 20, 2018)

## Graduates from the Department FY 2074/075

One PhD and twenty-seven master graduates have completed their studies from CDM, TU in FY 2074/075. The lists of their research and dissertations are mentioned below.

### Doctor of Physiology

1. Dharma Raj Bhatta- Isolation and molecular characterization of methicillin resistant Staphylococcus aureus from patients and carriers in hospital settings of Pokhara, Nepal.

### Master of Science

1. Bhola Shankar Sah- Drug resistance pattern of bacterial pathogens of Enterobacteriaceae family
2. Bhoj Raj Khanal- Colistin susceptibility against carbapenem resistant *Acinetobacter* species isolated from clinical specimens
3. Sabin Adhikari- Metallo beta lactamase producing *Pseudomonas aeruginosa* isolated from different clinical samples
4. Urmila Shrestha- Methicillin resistant *Staphylococcus aureus* carriage antibiotic susceptibility pattern and biofilm formation of isolates among heal thy school children
5. Biraj Lohani- Molecular detection of blashv, blatem and blactx-m genes from clinical isolates of enterobacteriaceae producing extended spectrum B-lactamase in a teritiary care hospital, Kathmandu, Nepal

6. Sikha Wagle- Susceptibility to fosfomycin in *Escherichia coli* isolated from urinary tract infected patients at tertiary care hospital of Kathmandu, Nepal
7. Reshu Pradhan- Detection of *Salmonella* (Enteric fever) infection among HIV positive patients and other patients
8. Rakshya Nepal- Antibiotic susceptibility pattern of gram negative bacterial isolates of lower respiratory tract infection of patients visiting Kathmandu Model Hospital, Nepal
9. Pariwartan Tiwari- Characterization and antimicrobial susceptibility pattern of respiratory isolates at lumbini zonal hospital
10. Bina Bhandari- Isolation and identification of methicillin resistant *Staphylococcus aureus* from school children and detection of mecA gene
11. Rachana Regmi- Protein tyrosine phosphatase 1B inhibition antimicrobial and antioxidant activity of the medicinal plants of Nepal
12. SarmilaNeupane- Bacteriological profile of infected wound of pediatric patient and its associated risk factor in burn ward of tertiary care hospital
13. Ramesh Chaudhary- Diversity of microbiota on the preserved specimens of natural history museum Swayambhu, Kathmandu
14. Pabitra Bhandari- Quality analysis of ground water from Bagmati river basin
15. Vishnu Bhattarai- *Campylobacter* co-infection associated with rotaviral diarrhea in children
16. Rima Vaidya- Detection of oxa-48 gene among carbapenemase producing *Escherichia coli* and *Klebsiella pneumoniae* in clinical isolates
17. GovindaBadahit- Screening of plastic degrading *Pseudomonas* spp. from soil
18. SushilaBaral- Detection of biofilm formation *ica* and *fnba* genes in clinical methicillin resistant *Staphylococcus aurerus* isolates
19. Sharada Thapa Magar- Antibiotic susceptibility pattern of bacteria isolated from the intensive care unit of a tertiary care hospital
20. Yashoda Subedi- Screening of soil *Bacillus*spp for antibiotic production against drug-resistant bacteria
21. Bhagawati Khadka- Effect of natural production on correlation of biofilm formation with multi drug resistance and ESBL production *Pseudomonas aeruginosa*
22. Sandeep Rijal- Detection of *Cryptosporidium*, *Cyclosporacayetanaesis* and *Cystoisospora belli* in green leafy vegetables of Kathmandu valley
23. Mahesh Acharya- Metallo beta-lactamases in imipenem-resistant *Pseudomonas*

*aeruginosa* in a tertiary care hospital, Kathmandu, Nepal

24. Ashis Bhattarai- Carbapenem resistance among gram negative bacteria isolated at a tertiary care hospital in Nepal
25. Sunita Baral- Diversity of midgut and salivary gland microbiota in dengue vectors *Aedes aegypti* (Linnaeus) and *Aedes albopictus* (Skuse)
26. Bishnu Thapa- In vitro antibacterial effect of medicinal plants against multridrug resistant gram-negative bacteria isolated from clinical samples
27. Sriju Pradhan- Dissemination of colistin resistant *Escherichia coli* harboring mcr-1 gene in poultry

## Publications of Articles from the Department's Faculties, FY2074/075

1. Joshi PR, Acharya M, Aryal R, Thapa K, Kakshapati T, Seng R, Singh A and Sitthisak S. Emergence of staphylococcal cassette chromosome *mec* type I with high-level mupirocin resistance among methicillin-resistant *Staphylococcus aureus*. Asian Pacific Journal of Tropical Biomedicine 2017; 7(3): 930-933.
2. Sharma S, Shakya G, Tuladhar R, Banjara MR and Singh A. Impact of climate change on the occurrence of cholera in Kathmandu Valley. European Journal of Biomedical and Pharmaceutical Sciences 2017; 3(8): 251-255.
3. Sharma HN, Sharma Chalise B, Rai G, Adhikari, Bastola A and Singh A. Prevalence of intestinal parasitic infections among people living with HIV/AIDS visiting a central hospital of Kathmandu Nepal. Asian Journal of Medical Sciences 2017; 8(5): 87-92.
4. Maharjan AMS, Jha B and Singh A. Liver Function Tests in HBsAg Positive Blood Donors. Tribhuvan University Journal of Microbiology (TUJM) 2017; 4(1): 9-10.
5. Khadka DK, Bam DS, Ghimire P and Singh A. Gene Xpert based detection of drug resistant tuberculosis among retreatment patients visiting National Tuberculosis Centre, Nepal. Journal of Institute of Medicine (JIOM) 2018; 39(3):78-83.
6. Ghimire P, Thriemer KL, Ley B, Price R, et al. Quantifying primaquine effectiveness and improving adherence: a round table discussion of the APMEN Vivax Working Group. Malaria Journal 2018; 17:241.
7. Ghimire P, Upadhyay MP, Sherchand JB, Kharel (Sitaula) R, Upadhya BP, Shrestha B, Khanal B. Seasonal Hyperacute Panuveitis in Nepal: A Review

over 40 Years of Surveillance. Occular Immunology and Inflammation March 2018.

8. Khadka DK, Ghimire P, Pant RP, Lamichhane B, Singh A. Identification of rpoB, gyrA and embB Gene Mutations in Mycobacterium Tuberculosis Isolates from Retreatment Tuberculosis Patients in Nepal. SAARC Journal of Tuberculosis, Lung Diseases and HIV/AIDS, March 2018.
9. Ghimire P, Dumre SP, Bhandari R, Shakya G, Shrestha SK, Sama Cherif M, Klungthong C, Yoon I, Hirayama K, Na-Bangchang K, and Fernandez S (2017). Dengue Virus Serotypes 1 and 2 Responsible for Major Dengue Outbreaks in Nepal: Clinical, Laboratory, and Epidemiological Features. Am J Trop Med Hyg 2017; 97(4): 1062-1069.
10. Ghimire P, Singh N, Ortega L, Rijal KR, Adhikari B, Thakur GD, Marasini BR. Glucose-6-Phosphate Dehydrogenase deficiency in people living in malaria endemic districts of Nepal. Malaria Journal 2017; 16: 214.
11. Lekhak B, Acharya S, Bimali NK, Shrestha S. Bacterial analysis of different types of Milk (Pasteurized, Unpasterized and Raw milk) consumed in Kathmandu Valley. Tribhuvan University Journal of Microbiology 2017; 4:32-38.
12. Subedi S, Sharma GN, Dahal S, Banjara MR, Pandey BD. The Health Sector Response to the 2015 Earthquake in Nepal. Disaster Med Public Health Prep 2018; 2:1-5.
13. Upadhyay BP, Ghimire P, Tashiro M, Banjara MR. Characterization of Seasonal Influenza Virus Type and Subtypes Isolated from Influenza Like Illness Cases of 2012. Kathmandu Univ Med J 2017; 57(1):56-60.
14. Hirve S, Kroeger A, Matlashewski G, Mondal D, Banjara MR, Das P, Be-Nazir A, Arana B, Olliaro P. Towards elimination of visceral leishmaniasis in the Indian subcontinent- Translating research to practice to public health. PLoS Neglected Tropical Diseases 2017; 11 (10): e0005889.
15. Shedain PR, Devkota MD, Banjara MR, Ling H and Dhital S. Prevalence and risk factors of hepatitis B infection among mothers and children with hepatitis B infected mother in upper Dolpa, Nepal. BMC Infectious Diseases 2017; 17: 667.
16. Upadhyay BP, Ghimire P, Tashiro M, Banjara MR. Molecular Epidemiology and Antigenic Characterization of Seasonal Influenza Viruses Circulating in Nepal. J Nepal Health Res Counc 2017; 15(35):44-50.
17. Olliaro PL, Shamsuzzaman TA, Marasini B, Dhariwal AC, Be-Nazir A, Mondal D, Banjara MR, Das P, Sundar S, Rijal S, Arana B, Alvar J, Argaw D, Peeling

RW, Kroeger A, Matlashewski G. Investments in Research and Surveillance Are Needed to Go Beyond Elimination and Stop Transmission of Leishmania in the Indian Subcontinent. PLoS Neglected Tropical Diseases 2017; 11(1):e0005190.

18. Pandey P, Pant ND, Rijal KR, Shrestha B, Kattel S, Banjara MR, Maharjan B, KC R. Diagnostic Accuracy of GeneXpert MTB/RIF Assay in Comparison to Conventional Drug Susceptibility Testing Method for the Diagnosis of Multidrug-Resistant Tuberculosis. *PLoS One* 2017; 12(1):e0169798.
19. Tuladhar P, Khadka DK, Banjara MR, Tuladhar R. Second line drug resistant *Mycobacterium tuberculosis* in multi-drug resistant tuberculosis patients. Journal of Institute of Science and Technology 2018; 22(2): 168-174.
20. Gupta BP, Tuladhar R, Kurmi R, Manandhar KD. Dengue periodic outbreaks and Epidemiological trends in Nepal. Annals of Clinical Microbiology and Antimicrobials 2018; 17: 6.
21. Ghimire A, Acharya B, Tuladhar R. Extended spectrum β-lactamase (ESBL) producing multidrug resistant Gram-negative bacteria from various clinical specimens of patients visiting a tertiary care hospital. Tribhuvan University Journal of Microbiology 2017; 4: 1-8.
22. Basnyat S, Khadka R, Sherchand JB, Shrestha R, Adhikari N (2017). Rotavirus infection among Diarrhoeal Children under 10 years of Age Visiting a Children's Hospital in Kathmandu Nepal. Tribhuvan University Journal of Microbiology. 4:43-48.
23. Joshi DR, Zhang Y, Gao Y, Liu Y, Yang M. Biotransformation of nitrogen and sulfur containing pollutants during coking wastewater treatment: Correspondence of performance to microbial community functional structure. Water Research 2017; 121: 338-348.
24. Joshi DR, Zhang Y, Zhang H, Gao Y, Yang M. Characteristics of microbial community functional structure of a biological coking wastewater treatment system. Journal of Environmental Sciences 2018; 63: 105–115.
25. Joshi DR. The waste water resistome: Lurking antibiotic resistance in the environment. *Tribhuvan University Journal of Microbio*logy 2017; 4 (1): 79-84.
26. Acharya M, Joshi PR, Thapa K, Aryal R, Kakshapati T, Sharma S. Detection of metallo-beta-lactamases-encoding genes among clinical isolates of *Pseudomonas aeruginosa* in a tertiary care hospital, Kathmandu, Nepal. BMC Res Notes 2017; 10(1):718.
27. Devkota SP, Sharma S, Bhatta DR, Paudel A, Sah AK, Kandel BP. Prevalence of NDM gene among metallo-beta-lactamase producing gram-negative

isolates from western Nepal. J Glob Antimicrob Resist 2017 Nov 13. pii: S2213-7165(17)30214-X. doi: 10.1016/j.jgar.2017.11.003.

28. Acharya J, Rijal N, Sharma S. Increasing trend of ESBL producing *E. coli* in Nepal's laboratory-based AMR surveillance. Abstract for poster presentation for ASM microbe 2018 organized by American Society of Microbiologists (ASM) at Atlanta, USA June 7-11, 2018.
29. Lamichhane N, Adhikari N, Shrestha UT, Rijal KR, Banjara MR, Ghimire P. Population based survey of Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency among people living in Eastern Terai Districts of Nepal. Tribhuvan University Journal of Microbiology (TUJM) 2017; 4(1): 73-78.
30. Lama U, Shah D, Shrestha UT. Vancomycin Resistant *Staphylococcus aureus* reported from Tertiary care hospital in Nepal. Tribhuvan University Journal of Microbiology (TUJM) 2017; 4(1): 63-72.
31. Subedi S, Pant ND, Adhikari N, Shrestha UT, Shrestha B. Use of GeneXpert for the diagnosis of multidrug resistant pulmonary tuberculosis among smear negative suspected tuberculosis cases in Nepal (Letter to Editor). Janaki Medical College Journal of Medical Sciences 2016; 4 (2): 50-52.
32. Simkhada P, K.C. SR, Lamichhane S, Subedi S & Shrestha UT. Bacteriological Profile and Antibiotic Susceptibility Pattern of Blood Culture Isolates from Patients Visiting Tertiary Care Hospital in Kathmandu, Nepal. Global Journal of Medical Research: © Microbiology and Pathology 2016; 16(1): 24-31.
33. Rijal KR, Adhikari B, Ghimire P, Banjara, MR, Hanboonkunupakarn, B, Imwong, M, Chotivanich, K, Ceintury, KP, Lal, BL, Thakur, GD, Day, NPJ, White, NJ and Pukrittayakamee S. Epidemiology of *P. vivax malaria* infection in Nepal. Am J Trop Med Hyg. 2018 Jul 16.doi: 10.4269/ajtmh.18-0373.
34. Kunwar D, Bhatta S, Chaudhary R, Rijal KR. Antibiotic Susceptibility Pattern of Nalidixic Acid Resistant *Salmonella* Isolates in Shree Birendra Hospital Chhauni. Tribhuvan University Journal of Microbiology 2017; 4(1): 11-14.
35. Tamang K, Shrestha P, Koirala A, Khadka J, Gautam N and Rijal KR. Prevalence of Bacterial Uropathogens Among Diabetic Patients Attending Padma Nursing Hospital of Western Nepal. Himalayan Journal of Science and Technology 2017; 1(1): 13-19.
36. Koirala A, Agrahari G, Dahal N, Ghimire P and Rijal KR. ESBL and MBL mediated resistance in clinical isolates of non-fermenting gram-negative bacilli (NFGNB) in Nepal. Journal of Microbiology and Antimicrobial Agents 2017; 3(1): 18-24.

## ANNEX-I
# FACULTIES

**Dr. Megha Raj Banjara**
Associate Professor & Head of Dept.

**Prof. Dr. Anjana Singh**
Professor

**Prof. Dr. Dwij Raj Bhatta**
Professor

**Prof. Dr. Prakash Ghimire**
Professor

**Mr. Binod Lekhak**
Associate Professor

**Ms. Reshma Tuladhar**
Lecturer

**Ms. Shaila Basnyat**
Lecturer

**Dr. Devraj Joshi**
Lecturer

**Dr. Komal Raj Rijal**
Lecturer

**Ms. Supriya Sharma**
Lecturer

**Ms. Purnima Baidya**
Lecturer

**Ms. Manita Aryal**
Lecturer

**Mr. Nabaraj Adhikari**
Lecturer

**Mr. Upendra Thapa Shrestha**
Lecturer

## ANNEX-II

# STAFF

**Navaraj Karki**
Section Officer

**Raiman Shakya**
Main Office Assistant-Store

**Ramesh Ghimire**
Main Account Assistant

**Bijaya Laxmi Maharjan**
Lab Assistant

**Bimala Pandey**
Account Assistant

**Madhukar Thapa**
Senior Lab Boy

**Ramesh Maharjan**
Senior Lab Boy

**Hikmat Lal Shrestha**
Senior Lab Boy

**Diwakar Thapa**
Senior Lab Boy

**Ramesh Khadka**
Senior Lab Boy

**Akal Man Maharjan**
Office Assistant

**Shyam Tamang**
Office Helper

**Iswori Khadka**
Office Helper

**Pabitra Deula**
Office Helper

## ANNEX-III

# Annual budget of the Institution with details of income and expenditure, Fy 2074/075

२०७६ असार

| लेखा | वजेट निकाशा | थप वजेट | आन्तरिक श्रोत वजेट | धरौटी निकाशा | वर्षको शुरु पेश्की | जम्मा | खर्च | हालको वाँकीपेश्की | जम्मा | वँकी |
|---|---|---|---|---|---|---|---|---|---|---|
| | २ | ३ | ४ | ५ | ६ | २+३+४+५+६।७ | ८ | ९ | ८+९।१० | ७-१०।११ |
| ०१/००१ | | | ० | | | ० | | | | ० |
| ०१/००२ | | | ६८०००००० | | | ६८०००००० | | | | ६८०००००० |
| ०१/००४ | | | ५००००० | | | ५००००० | | | ० | ५००००० |
| ०१/००६ | | | ५०००००० | | | ५०००००० | | | ० | ५०००००० |
| ०१/००७ | | | २०००००० | | | २०००००० | ७७२४०.०२ | | ७७२४०.०२ | १९२२७५९.९८ |
| ०१/००८ | | | २००००० | | | २००००० | १५५८५ | | १५५८५ | १८४४१५ |
| ०१/००९ | | | ० | | | ० | ० | | ० | ० |
| ०१/०१० | | | ५००००० | | | ५००००० | ६७४८३.३ | | ६७४८३.३ | ४३२५१६.७ |
| जम्मा | ० | ० | ७६२००००० | | | ७६२००००० | १६०३०८.३२ | | १६०३०८.३२ | ८०३९६९१.६८ |
| ०९/००१ क | | | | | | | | | | |
| ०९/००१क | ६६५५००० | ९९६०२४ | | | | ७६५१०२४ | ६७६६७०८ | ० | ६७६६७०८ | ८८४३१६ |
| ०९/००१ख | | | ४००००० | | | ४००००० | ६९४८० | | ६९४८० | ३३०५२० |
| ०९/००२ | ४१४४००० | ० | १३८००० | | | ४२८२००० | ४१२३३६४ | | ४१२३३६४ | १५८६३६ |
| ०९/००३ | ६२७००० | ४६००० | | | | ६७३००० | ६४६७२४ | | ६४६७२४ | २६२७६ |
| ग्रे* | | ० | | | | ० | | | | ० |
| ०९/००४ | ९९६००० | ८५५०० | | | | १०८१५०० | १००५९५३.७ | | १००५९५३.७ | ७५५४६.३ |
| ०९/००५ उपदानकोष | १९७००० | ८५५०० | | | | २८२५०० | २७३१५६.७ | | २७३१५६.७ | ९३४३.३ |
| ०९/००५ ख | | | ९९४९००० | | | | | | ० | |
| ०९/००६ | | | ५००००० | | | ५००००० | २२२८०० | | २२२८०० | २७७२०० |

| लेखा | वजेट निकाशा | थप वजेट | आन्तरिक श्रोत वजेट | धरौटी निकाशा | वर्षको शुरु पेश्की | जम्मा | खर्च | हालको वाँकीपेश्की | जम्मा | वँकी |
|---|---|---|---|---|---|---|---|---|---|---|
| ०९/००८ | | | १००००० | | | १००००० | ७०८३७.६३ | | ७०८३७.६३ | २९१६२.३७ |
| ०९/०११ | | ५०००० | १००००० | | | १५०००० | १४८३९५.५६ | | १४८३९५.५६ | १६०४.४४ |
| ०९/०१३ | | १०००० | १००००० | | | ११०००० | १०९८३६ | | १०९८३६ | १६४ |
| ०९/०१६ | | | | | | ० | ० | | ० | ० |
| ०९/०१७ | | | ४००००० | | | ४००००० | १५५५८५.७ | | १५५५८५.७ | २४४४१४.३ |
| ०९/०१८ | | २००० | ५००० | | | ७००० | ६८०० | | ६८०० | २०० |
| ०९/०१९ | | | ० | | | ० | ० | | ० | ० |
| ०९/०२१ | | | १००००० | | | १००००० | ४११००.५ | | ४११००.५ | ५८८९९.५ |
| ०९/०२३ | | | १००००० | | | १००००० | ५६१४५ | | ५६१४५ | ४३८५५ |
| ०९/०२४क | | | ८००००० | | | ८००००० | ६२४७६० | | ६२४७६० | १७५२४० |
| ०९/०२४घ | | १५००० | ५०००० | | | ६५००० | ६३१५८ | | ६३१५८ | १८४२ |
| ०९/०२४च | | | | | | | | | | |
| ०९/०२८ | | ६२५५०० | १००००० | | | ७२५५०० | ६४३१०७.३३ | | ६४३१०७.३३ | ८२३९२.६७ |
| ९.०२९ | | २५२०० | | | | २५२०० | २५२०० | | २५२०० | ० |
| ०९/०३० | | २८३००० | ५००००० | | | ७८३००० | ७८२४४६.९ | | ७८२४४६.९ | ५५३.१ |
| ९.०३१ | | १५२८०० | ० | | | १५२८०० | १५२७३४ | | १५२७३४ | ६६ |
| जगे*ा कोष | | | ९९४९००० | | | ९९४९००० | ० | | ० | ९९४९००० |
| जम्मा | १२६१९००० | २३७६५२४ | २३२९१००० | | ० | १८३८८५२४ | १५९८८२९३.०२ | | १५९८८२९३.०२ | २४००२३०.९८ |
| कूलजम्मा | १२६१९००० | २३७६५२४ | ९९४९१००० | | ० | १६१४८६०१.३४ | १६१४८६०१.३४ | | ० | १०४३९९२२.६६ |

ANNUAL REPORT

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## 2074/075

**Tribhuvan University**
**Institute of Science and Technology**
## Central Department of Microbiology
**(Estd. 14 November 1990)**

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