



भवानी प्रसाद खापुङ
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स्वास्थ्य तथा जनसङ्ख्या मन्त्री
Minister for
Health and Population



नेपाल सरकार
Government of Nepal

स्वास्थ्य तथा जनसङ्ख्या मन्त्रालय
Ministry of Health and Population



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I'm pleased to know that National Ayurveda Research and Training center is going to publish its annual report for the year 2078-79. I would like to congratulate the Executive Director and each and every member of the team for yet another successful year in the service to the people of Nepal.

Ministry of Health and population is very committed for the development of Ayurveda in Nepal. MoHP has always been optimistic and supportive in its task of research, training and health care service of NARTC since its establishment. Undoubtedly, NARTC has contributed various research and training activities in the development of Ayurveda health care system in Nepal. NARCT has played a vital role in the past year for the prevention, treatment and effective management of COVID-19. Establishment of isolation center and HDU have greatly helped manage the coronavirus outbreak. I believe NARTC will conduct more innovative research and training activities for contributing towards the globalization of Ayurveda health services to people in its near future.

Last but not the least; I would like to congratulate NARTC team for a productive year, and I am confident that this institution will continue to work in the sector of healthcare as efficiently in the future years to come.

Thank you.

Hon. Bhawani Prasad Khapung

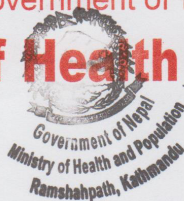
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Date :

It is an immense pleasure to know that National Ayurveda Research and Training Center, Kirtipur is due to publish Annual Report for the year 2078/79. My heartily congratulations goes to the whole team and Executive Director of the center for the successful completion in this fiscal year.

NARTC has done its level best to achieve its missions and goals in the sector of Ayurveda healthcare, research and training. Ministry of Health and Population is very optimistic about this national Institution. It has been entrusted with the task of research, training and health care services of Ayurveda medicine. I believe that the strategies and planning carried out by this institution will contribute in the development of Ayurveda health care system in the country.

I would like to thank National Ayurveda Research and Training Center team for a successful completion of this fiscal year achieving all its goals, and I'm confident that it will continue to do so in coming years.

.....
Dr. Roshan Pokhrel
Secretary

Executive Summary

To begin with, National Ayurveda Research and Training Center (NARTC) is a national level institution for advancing research, conducting training and providing health care services in Nepal. NARTC is mainly focused as a national level apex body for effective development and promotion of Ayurveda since its establishment. For such, it has been conducting various types of research activities in Ayurveda so that we can generate scientific evidences in regards to Ayurveda treatment.

It is a matter of pleasure that NARTC has been experiencing steady growth of achievements. This fiscal year, we have continued animal model research where hypoglycemic activity of *Jasminum nudiflorum* was studied in diabetic rats along with antimicrobial and phytochemical analysis. This definitely has made a new paradigm shift in understanding anti-diabetic properties of such herbs. NARTC is very hopeful to develop anti-microbial agents using Ayurvedic formulation in the near future. In this fiscal year, we continued micro-propagation of high value medicinal plants which we aim to distribute among local farmer helping them to improve their socio-economic status.

NARTC has also conducted a randomized controlled trial to evaluate the efficacy and safety of Trikgud as an add-on medicine in uncontrolled type 2 diabetes mellitus. Through this research, we are able to spread awareness, prevention, cure and future consequences of the diseases in the general population. We have also conducted an epidemiological research in finding out the prevalence of Type 2 Diabetes mellitus in different areas of Nepal.

NARTC has always been responsible towards healthcare challenges that the country may face. During the third and fourth wave of COVID-19 pandemic, NARTC continued fulfilling its responsibility for the society by providing effective services to COVID-19 patients.

NARTC has conducted different training programs for skill enhancement of Ayurvedic doctors, health workers and paramedics. In this fiscal year, we have conducted training and workshop in Basti therapy, clinical application of Marmachikistha with experts and consultants from various national and International institutions to enhance the skills of our healthcare personnel. Likewise, training and workshop on Agnikarma and also on Kshar-sutra technique on ano-rectal diseases were conducted. Like previous years we have continued stress management sessions in NARTC.

In health care services, we have been providing state of the art services in the field

of Ayurveda in NARTC's hospital. This institution is also emerging as a center for excellence in the management of ano-rectal disease by Kshar-sutra method and other metabolic diseases by Panchakarma therapy. It is our prime objective to always be aware about opportunities and challenges of the institution. NARTC is very much committed to tackle all the challenges and contribute to development of Ayurveda.

At last but not the least, I would like to thank all the doctors, research officers, administrative staffs and all the family of NARTC for their support and cooperation to continue in the service of Nepal.



.....

Dr. Ram Adhar Yadav

Executive Director,

National Ayurveda Research and Training Center,

Kirtipur, Kathmandu, Nepal

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OVERVIEW

Historical Background

National Ayurveda Research and Training Center (NARTC), under the Ministry of Health and Population, Government of Nepal is an autonomous body primarily working in the field of Ayurveda research, healthcare and capacity building. NARTC was established as a national level apex body for effective development and promotion of Ayurveda as a model institute for advancing research, training and patient care by Ayurveda system of medicine. The NARTC project began since the month of November 2003 when the Government of Nepal proposed to the Government of the People's Republic of China for the unequivocal necessity of NARTC project in Nepal. Under the joint efforts and friendly cooperation between the nations, both the nations officially agreed to implement NARTC project on August 16, 2004. The Government of the People's Republic of China and the Ministry of Health and Population of the Government of Nepal authorized China Jiangxi Cooperation for International and Technical Cooperation to build the project of NARTC on September 21, 2008. The project was commenced on February 20, 2009 and the Government of the People's Republic of China handed NARTC over to Government of Nepal on April 3, 2011. For further enhancement of NARTC, the Government of the People's Republic of China aided medical and training equipment with the value of RMB Yuan 15,400,000/- (RMB Yuan Fifteen Million and Four Hundred Thousands Only) in accordance with the provision of the letters exchanged on August 18 and August 24, 2014 between the nations. The Government of the People's Republic of China officially handed over the equipment to the Government of Nepal on May 11, 2016. In addition to this, Chinese technical team also supported installment of equipment at NARTC. Under Development Committee Act, NARTC was in operation from February 12, 2012 till July 16, 2019.

Location

NARTC is located just outside the premises of Tribhuvan University, Kirtipur with an area of 19482.4 m² (30 *Ropanies*). The organization has three major blocks namely Research Hospital block, Research block and Training block. Another four small buildings are designated as animal house, generator and water equipment house, and waste management and cafeteria buildings. Building construction occupied 34563 m² (17.7%) area of the territory of NARTC.

Vision

- The major vision envisaged for the NARTC is to promote research and training activities for contributing towards the globalization of Ayurveda system of Medicine and for providing evidence based quality Ayurveda health services to people.

Mission

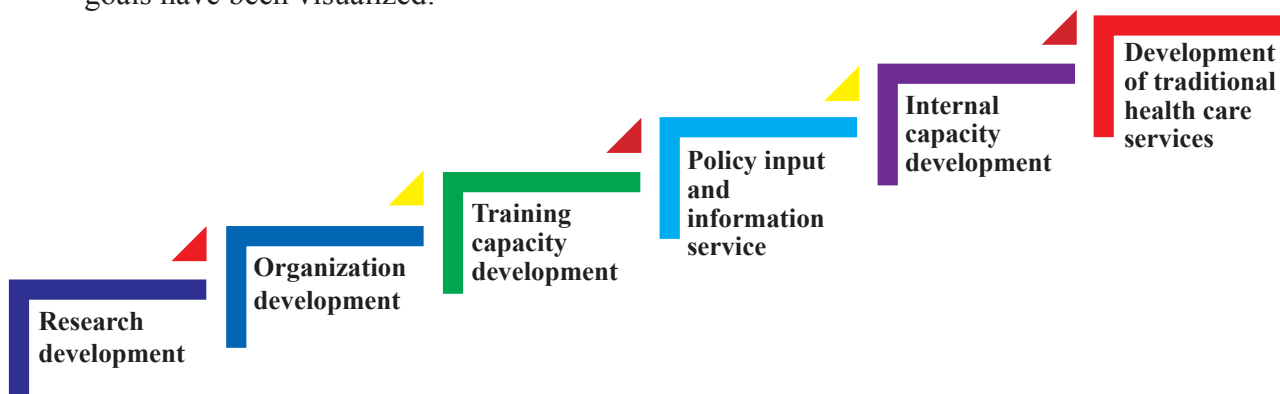
- Support and conduct ethical research in Ayurveda.
- Train and provide skilled manpower in field of Ayurveda.
- Implement evidence based research in treatment to the patient care activities to validate Ayurvedic treatment.
- Advocate and disseminate knowledge of Ayurveda research for the welfare of mankind.

Objectives

- To protect, preserve, develop and commercially utilize medicinal and aromatic plants (MAPs) and natural resources to meet the WTO (World Trade Organization), TRIP S (Trade-Related Aspects of Intellectual Property Rights) and IPRs (Intellectual Property Rights).
- To build linkages with different institutions and entrepreneurs inside and outside the country.
- To develop appropriate technology and transfer of technology and skill up to the grass root level for the conservation, cultivation and capitalization of medicinal plants.
- To develop inventive and innovative steps for development of drugs and clinical practices.
- To initiate and promote research and good practices applied in production, manufacture and supply of Ayurveda and herbal drugs.
- To provide necessary training for the employees of government and non-government of Ayurveda institution and its related human resources.
- To identify measures for enhancing the capacity of developing programs in farming and processing of Medicinal and Aromatic plants.
- To conduct national and international meetings/seminars/conferences.

Strategies

- In order to perform institutional roles and undertake necessary activities following strategies goals have been visualized:



I: Research

1. Contribution in life-science research based on Ayurveda principles
2. Delivering modern research techniques based on Ayurveda guidelines.
3. Delivering information about research, training and health care service.
4. Generating revised evidences for Ayurveda healthcare system in Nepal

II: Training

1. Delivering and improving training services.
2. Developing researches, trainers and experts.
3. Developing capacity building and strengthening professional related governmental and non-government organizations.

III: Health Care Services

1. Strengthening Ayurveda healthcare system of Nepal.
2. Popularizing Ayurveda system of medicine.
3. Contributing in evidence based health care services.

IV: Internal Capacity Development

1. Capacity building within the organization in various related sectors for better output of the organization as a whole.
2. Developing internal organizational and management capacity through various training and capacity building sessions within and outside the institution

V: Policy Input and Information Services

1. Maintain collaboration with existing stake holders, while promoting linkages with new institutions with similar goals and objectives.

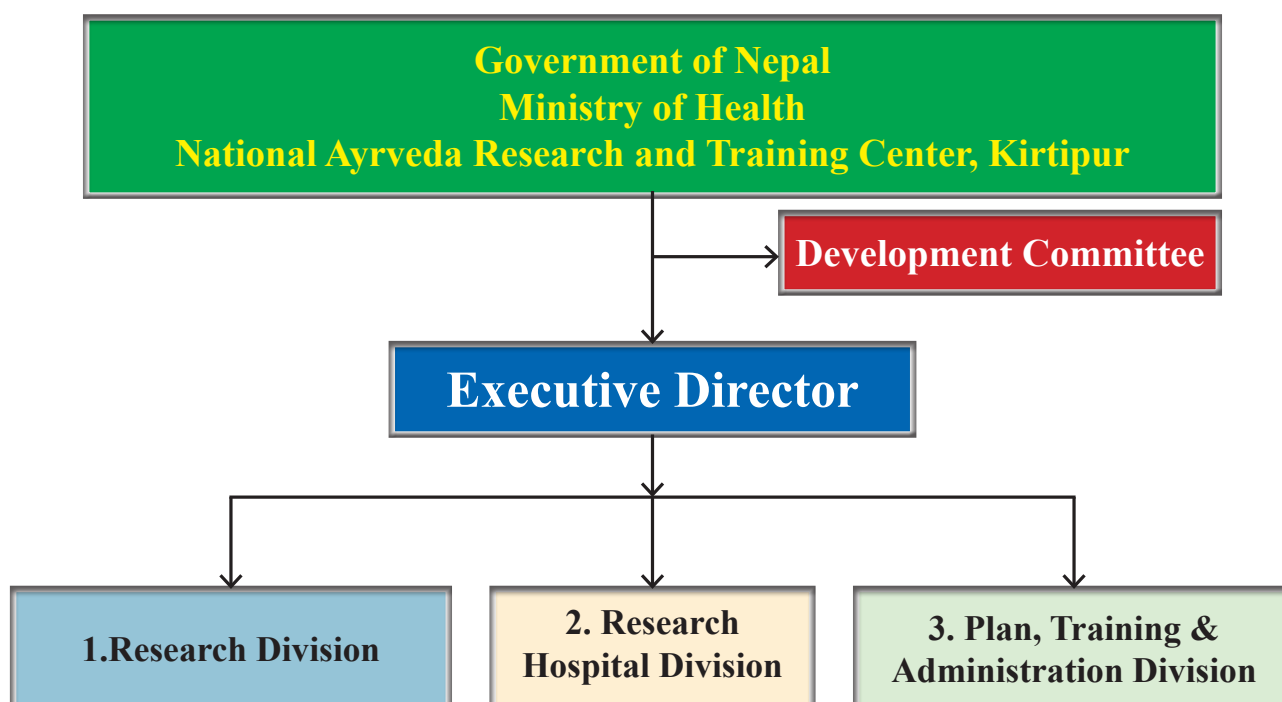
Organization structure

The organizational structure of NARTC has been set up under Development Board Act of Government of Nepal. It is an autonomous institution under Ministry of Health and Population, Nepal. Development Committee of the center delivers policy, approves programs and reviews progress. The Executive Director of NARTC is responsible for overall management of the organization. The heads of the NARTC divisions are responsible for the day to day functioning of their respective divisions.

The organization set up of NARTC is depicted under three divisions:

- Research Hospital Division
- Research Division
- Plan, Training and Administration Division.

Organogram



Provincial Branches of NARTC

Among the seven provinces of Nepal, NARTC already has established its branches in Province 1, Madesh Province and Gandaki Province.

Below is the list of branches currently in service.

- Province 1, Laukahi, Sunsari
- Province 2, Bardibas, Mahottari
- Province 3, Nuwakot, Belkotgadhi
- Province 4, Siranchowk, Gorkha

The Institutional Review Committee (IRC)

The Institutional Review Committee (IRC) of NARTC reviews proposed studies to ensure that it follows internationally and locally accepted ethical guidelines. They monitor studies once they have begun and, where relevant, take part in follow-up action and surveillance after the end of the research. The committee has the authority to approve, reject or stop study or require modification to research protocols.

Objective:

- To promote high ethical standards in research for health.

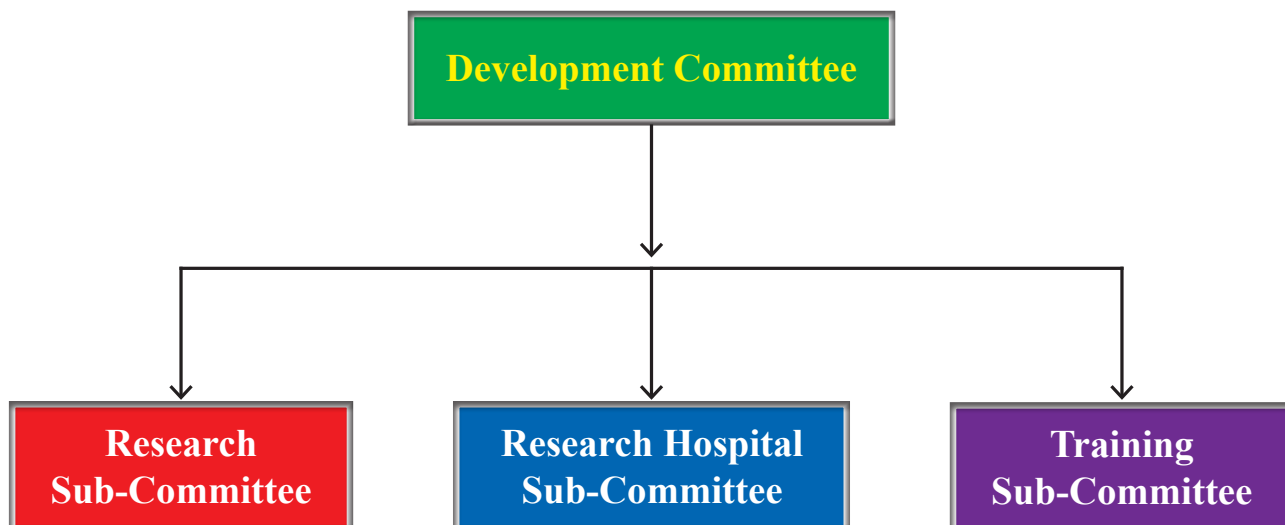
Functions

- To set policies or offer opinions on ongoing ethical issues in research
- To review international ethical standards governing research involving human participants, as well as by local law in many jurisdictions
- To review required laws of the country in which the research is being sponsored, even if it is not required by the host country's own laws
- To review to publish the results of their investigation, as most medical journals will not publish the results of research that has not received the approval of a research ethics committee
- To protect potential participants in the research
- To take into account potential risks and benefits for the community in which the research will be carried out

Sub-committees

NARTC has set up its experts committee for research, training and health care services. Highly experienced academic professionals are the members of sub-committee. The sub-committee members provide guidance and valuable suggestion in executing and implementing activities or programs in respective services. The three sub-committees at NARTC are:

- Research sub-committee
- Training sub-committee
- Hospital management sub-committee



Research sub-committee

Research sub-committee is organized to review intramural as well as collaborative research projects of NARTC. The committee critically reviews the research projects and recommends the research proposal for grant. The committee also plays vital role in disseminating information of the research result.

Objective :

- To prioritize research area, evaluate research proposals and recommend for grant.

Function

- To prioritize research area
- To select topics for research
- To review technical proposal
- To evaluate proposal
- To recommend for grant
- To disseminate the research
- To finalize the research report
- To recommend publication of the research report

Training sub-committee

This sub-committee overviews all the training activities/programs conducted by NARTC. It prioritizes training subjects, develops curriculum and recommends for conduction of training.

Objective :

- To prioritize training area, develops training curriculum and recommends implementing training.

Function

- To prioritize training area
- To select topics for training
- To develop training curriculum
- To recommend conducting training
- To advise for further improvement

Hospital management sub-committee

This sub-committee generates advice for managing hospital smoothly. It prioritizes health care services and fixes fee. It also suggests recruiting required human resources installing of instruments, monitoring and evaluation of health care services.

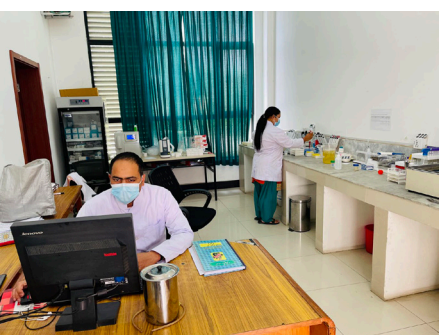
Objective :

- To manage health care services, fixes fee and recommends further projects for health care services

Function

- To manage health care services
- To fix fee of the services
- To contribute in clinical research
- To recommend health care projects
- To advise for further improvement





Program and Services

I. Research Hospital

Research based health services in OPD/IPDs are:

- Kaya Chikitsa (Internal Medicine)
- Shalya (Surgery)
- Shalakya (ENT)
- Stri-Prasuti (Gynaecological and Obstetrics)
- Arbuda (Oncology)
- Danta (Dental)

Special Services:

- Panchakarma Therapy
- Ksharsutra
- Acupuncture
- Therapeutic Yoga
- Physiotherapy

Other services are:

- Clinical Pathology
- Ultrasonography
- X-ray
- CT scan
- EEG/ECG
- Endoscopy/colonoscopy
- Pharmacy



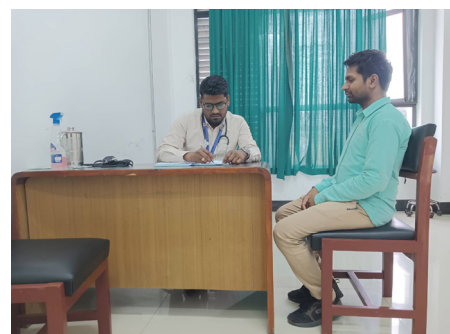
Current services in the laboratory

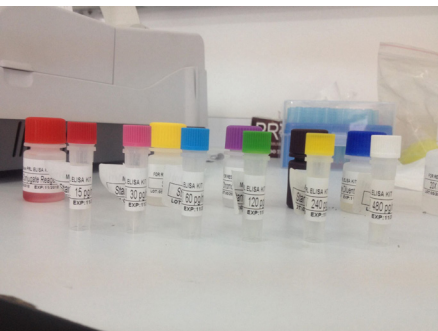
Biochemistry	Serology	Hematology	Others
Glucose	ASO Titre	CBC	Stool R/M
Uric acid	CRP (Qualitative)	ESR	Urine R/M
RFT	CRP (Quantitative)	CT/BT	Occult Blood
LFT	RA Factor	Reticulocyte count	
Lipid Profile	Widal Test	Kala azar	
Calcium	HIV 1& 2	Malaria	
Phosphorus	HBsAg	HbA1C	
Total Protein	HCV	D-Dimer	
Serum albumin	VDRL		
	H. Pylori		
	TPHA		
	Blood Grouping		

II. Research section

Currently running as well as perspective researches in NARTC are based on following fundamentals.

- Clinical research primarily focused on non-communicable disease





- Drug Research
- Drug Standardization
- Pre-clinical Research / Pharmacological Research
- Medicinal Plant Research (Medico-Ethno Botanical Research, Pharmacognosy),
- Literary Research & Documentation
- Toxicology
- Nutrition

Research units in NARTC:

Microbiology laboratory

- Evaluation of microbial contamination in drug formulations.
- Study activities of herbal plants against pathogenic micro-organisms.
- Antimicrobial activity of indigenous plants of Nepal
- Isolation of enzyme from bacterial culture.
- Preservation of bacterial strains.
- Tests for specified micro-organisms i.e. *Escherichia coli*, *Staphylococcus aureus*, *Bacillus subtilis*, *Klebsiella pneumoniae*, etc.
- Finding role of Ayurveda drugs in the treatment of various diseases

Molecular biology laboratory

- Isolation of plant DNA for digital library such as DNA barcoding.
- Preparation of DNA samples using PCR tools for further studies including sequencing.
- Isolation and characterization of bacterial DNA
- Molecular diagnosis of diseases

Immunology laboratory

- Quantification of hormonal changes during animal model trials of various drugs

- Quantification and analysis of toxic substances
- Disease diagnosis using ELISA
- Disease diagnosis using CLIA
- In-vitro essay for toxicity of various compounds

Instrumental analysis laboratory

- Chromatographic techniques for separation and analysis of samples.
- Separation of plant product on the basis of polarity, volatility and so on
- Standardization of Ayurveda medicines
- Determination of Dissolution, hardness, total ash, alcohol, extractive values, water soluble extractive, moisture content etc.
- Determination of Refractive index, Specific gravity, Determination of pH values, Determination of melting range and boiling range.
- Determination of viscosity, Determination of saponification, iodine & acid values
- Determination of peroxide value, Determination of alcohol content

Animal/Clinical trials

- Animal breeding, intervention and study of effects of various drugs.
- Development of histopathological laboratory.
- Development and evaluation of a novel drug delivery system of medicinal plant in Nepal
- Development of clinical trials of related diseases

Phytochemical Analysis Laboratory

- Hot and cold extraction of plant parts using various solvents.
- Concentration of extracts using rotary evaporator.
- Quantitative phytochemical analysis of Proteins & Amino acids, Carbohydrates, Glycosides, Phytosterols & Triterpenoids, Tannins, Flavanoids, Saponins, Alkaloids, and Fats & Fixed oils
- Determination of Total Ash, Determination of Acid Insoluble Ash,





Determination of Water Soluble Ash, Determination of Sulphated Ash

- Determination of Alcohol Soluble Extractive, Determination of Water Soluble Extractive
- Determination of Ether Soluble Extractive (Fixed Oil Content)
- Determination of Moisture Content (Loss on Drying)
- Determination of Volatile Oil in Drugs



Plant tissue culture

- Micro-propagation of medicinal plants of high commercial values.
- Growing endangered medicinal plants of Nepal in a controlled environment.
- Production of medicinal plants for commercial benefits as well as for research.



III. Training section

- Training on skilled development
- Strengthen and capacity building of respective professionals
- Improving capabilities of individual working at different levels of Ayurveda



IV. Other facilities

- Herbarium/ Crude Drug's Library

NARTC has developed its crude drug museum with more than 300 crude drugs. Crude drugs and medicinal plant species are collected from various parts of Nepal in appropriate time of the year and from appropriate altitudes. They are stored at dry and clean environment for further research and sampling purposes.

- **Library**

The library is an air-conditioned room with wi-fi internet connection. The library has books and photocopy references on ayurveda, allopathy, sanskrit, science etc. Rare and reference books are also kept separately. The library has started to collect research thesis by NARTC. Automation of library work is in progress and in near future it will digitalize.



➤ Conference and Training Hall

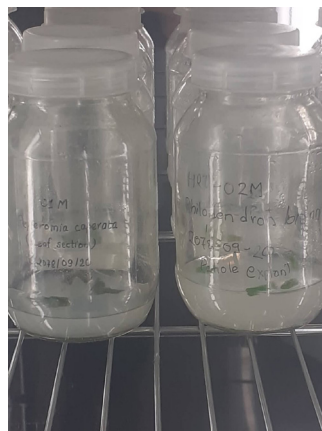
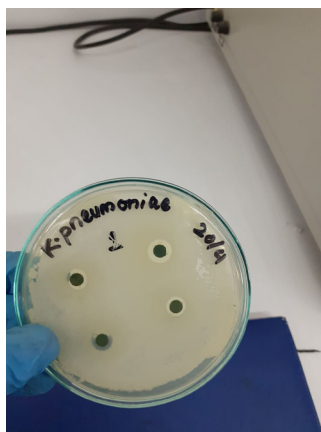
NARTC has an air-conditioned training hall with a capacity of 50, built with all facilities for conducting training activities. Training hall of NARTC is in good amenity. This is being used for training activities and seminars.

Collaboration and linkage

NARTC is mainly research and training based institution. It has linked up with national and international research and training organizations.

Some of the national and international organizations are:

- Nepal Health Research Council, Ramshah Path, Kathmandu
- Ayurveda Campus & Teaching Hospital, Kirtipur, Kathmandu
- B.P.Koirala Cancer Hospital, Bharatpur, Chitwan
- China Academy of Chinese Medical Sciences, Beijing, China
- Hebei Research Institute, Hebei, China



Highlights of Work Progress in FY 2078/79

A. HEALTH CARE ACTIVITIES

Research Hospital

NARTC has its own research hospital with a bed capacity of 31 for indoor patient department (IPD) and provides outdoor patient department (OPD) services as well. The main objective of the hospital is to provide evidence based medical care through Ayurveda system of medicine to the patients. It prioritizes clinical research along with patient care through its OPD, IPD, panchakarma therapy, ksharsutra, acupuncture, therapeutic yoga, physiotherapy, clinical pathology, ultrasonography, X-ray, CT scan, EEG/ECG, endoscopy/colonoscopy and pharmacy. Special treatment facilities are available for anorectal disorders, cancers, rheumatology and endocrinology. Registration is free in the hospital for senior citizens and patients who participate in intramural clinical research. Most of the medicines dispensed for intramural clinical research are manufactured in the pharmacy of NARTC and are provided for the patients free of cost. Health care services are 50 percent discount for the residents of Kirtipur Municipality and senior citizens.

Outpatient Department (OPD)

In the fiscal year 2078/79, a total of 10367 patients visited the NARTC including 3,985 new cases and 4,212 follow up cases, out of which 3483 patients attended Kayachikitsa OPD whereas 1620 patients attended Shalya OPD respectively (Table 1).

Table 1 : Frequency of patients visited NARTC OPDs in the year 2078/79

Service	Frequency
Total patients/cases	10367
New cases	3985
Follow up cases	4212
Renew cases	2156
Kaya Chikitsa (I, II & VI) OPD	3483
Shalya OPD	1620

The Figure 1 represents the frequency of patients who received the available services at NARTC in the year 2078/79. Among the services, the maximum patients i.e. 2,956 received Pathology laboratory services, followed by acupuncture unit with 2,406 patients. Similarly, 1557 patients were enrolled in Physiotherapy unit, 931 patients in Radiology & imaging unit, 855 patients in Panchakarma unit while 739 patients were in Dental unit.

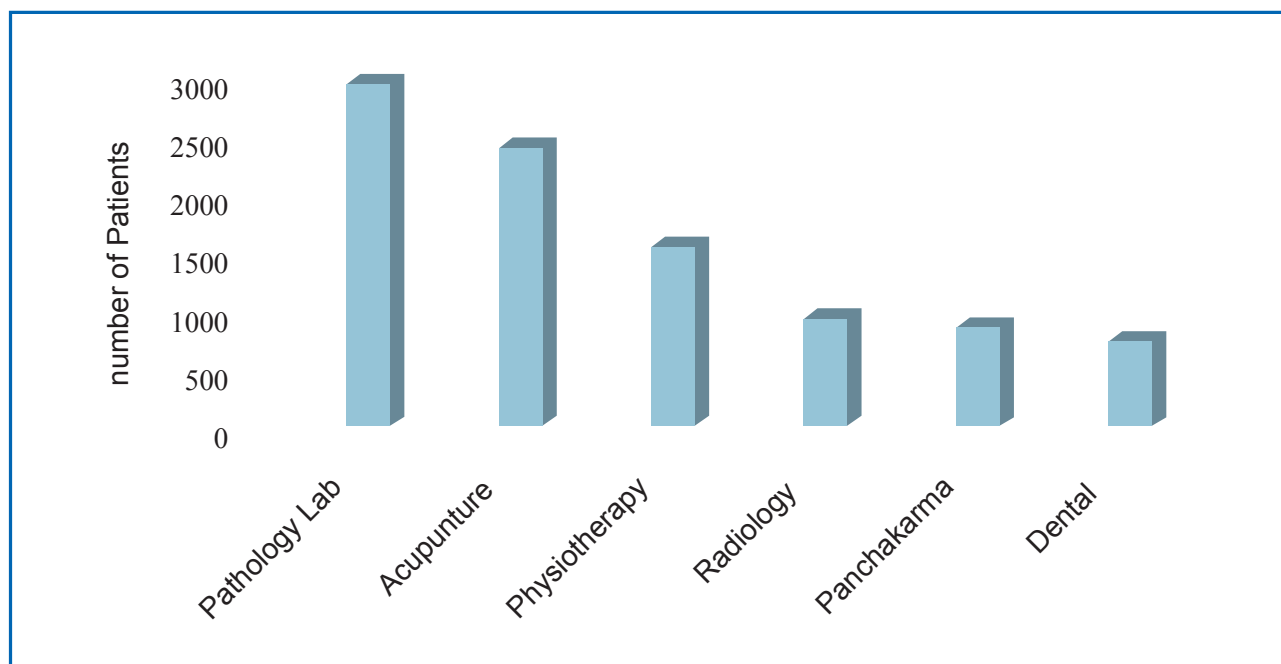


Figure 1 Frequency of patients receiving different services at NARTC in fiscal year 2078/79

Pathological Services

In the year 2078/79, we received 2,956 routine test samples in the Pathology laboratory of NARTC consisting 1739 biochemistry tests, 1,404 hematology, 1,219 serological and 311 parasitology tests (Figure 2). The received test samples include blood, urine and stool specimens.

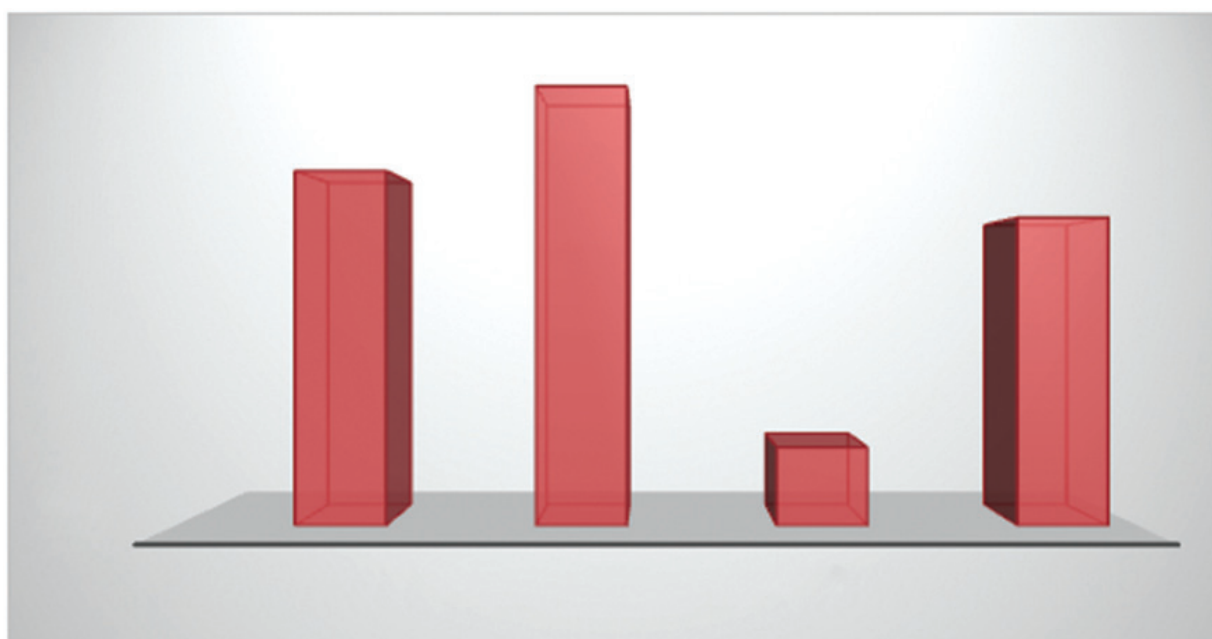


Figure 2 Distribution of routine tests in Pathology laboratory, NARTC in the year 2078/79

Inpatient Department (IPD)

The total bed capacity for IPD is 31 beds. During the year under report, the total patients treated in IPD were 161 out of which 78 were operated cases. As compared to previous year 2077/78, bed occupancy increased from 22 to 161 accounting above 13% increment.

A. RESEARCH ACTIVITIES

Clinical Research

i. Efficacy and safety of Trikgud as an add-on medicine in uncontrolled type 2 diabetes mellitus (T2DM) patients with metformin monotherapy: A randomized controlled trial



International Journal of Complementary & Alternative Medicine

Research Article



Efficacy and safety of Trikgud as an add-on medicine in uncontrolled type 2 diabetes mellitus (T2DM) patients with metformin monotherapy: A randomized controlled trial

Abstract

Metformin is quite effective in managing Type 2 diabetes mellitus (T2DM). Studies have reported that the combined use of oral hypoglycemic medicines is prescribed in uncontrolled T2DM metformin monotherapy. So, we aim to evaluate the efficacy and safety of Ayurvedic herbo-mineral formulation (*Trikgud*) in managing uncontrolled T2DM with metformin monotherapy in Nepalese population. This study was a randomized controlled trial. A total of 56 participants with the diagnosis of T2DM were randomly assigned to the intervention group (*Trikgudmet*) or control (*Met*) group in a ratio of 1:1 for 12 weeks. The primary outcome measures were the difference in the change in glycated haemoglobin (HbA1C), fasting plasma glucose (FPG) and 2-h postprandial plasma glucose (2-h PPG) between the groups, and secondary outcome measures were the change in body mass index (BMI), waist-hip ratio (WHR), lipid profile, liver function tests and renal function tests between the baseline and at 12 weeks after intervention. At week 12, there were significant differences of FPG and 2-h PPG in both *Trikgudmet* group and *Met* group when compared with week 0. There was a statistically significant decrease of 8.6% and 10.1% of HbA1C levels in *Trikgudmet* and *Met* groups, respectively. This study may provide "a new evidence for use of *Trikgud* as an add-on therapy for uncontrolled T2DM patients with metformin monotherapy in context of Nepal.

Keywords: Type 2 diabetes mellitus, trikgud, metformin

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Abbreviations: SEAR, southeast asia region; IDF, international diabetes federation; T2DM, Type 2 diabetes mellitus; FBG, fasting blood sugar; STZ, streptozotocin; PPG, post prandial blood glucose; HbA1c, glycosylated hemoglobin; NARTC, national ayurveda research and training center; FPG, fasting plasma glucose; 2-h PG, 2-h plasma glucose; OGTT, oral glucose tolerance test; RPG, random plasma glucose; API, ayurvedic pharmacopoeia of India; ALT, alanine aminotransferase; AST, aspartate aminotransferase; HDL, high-density lipoprotein; LDL, low-density lipoprotein; BMI, body mass index; WC, waist circumference; WHR, waist-hip ratio; SPSS, statistical package for the social sciences.

Introduction

Diabetes is a chronic metabolic disease with a major impact on human being worldwide. It is estimated that 537million adults aged 20-79years are currently living with diabetes. The total number of people with diabetes is predicted to increase to 11.3% by 2030 AD and 12.2% by 2045 AD. Diabetes mellitus is also a growing public health concern in the Southeast Asia region (SEAR), where more than 90.2million people are living with diabetes. International Diabetes Federation (IDF) projects that the number of people with diabetes in the SEAR will increase 68%, reaching 152million by 2045 AD. The number of people with diabetes aged 20-79years in Nepal is 1.1million.¹

Type 2 diabetes mellitus (T2DM) is the most common type of diabetes, accounting for over 90% of all diabetes worldwide. The first choice of managing T2DM is by improving a healthy lifestyle. If not controlled with healthy diet, proper physical activity and other healthy lifestyle measures, oral medication is usually initiated.¹ Metformin is

the first-line medicine for T2DM and the most commonly prescribed drug for T2DM worldwide, either alone or in combination with other glucose-lowering therapies or insulin. Metformin is a biguanide, a drug class of herbal origin that has been widely used to treat diabetes since the 1950s.² It is difficult to determine the right choice of additional anti-hyperglycemic drug to manage uncontrolled T2DM with metformin monotherapy.³ Even though previous clinical studies have shown that the combined use of oral hypoglycemic medications is more effective than antidiabetic monotherapy,^{4,6} but, a systemic review and meta-analysis for add-on therapies to metformin have shown similar effect to those for monotherapies.⁷

Although modern drugs are quite effective in getting blood glucose level down, it is subject to sustaining certain side effects.⁸⁻¹⁴ Hence, a quest of alternative approach in the management of T2DM is essential and Ayurveda treatment modality is one such approach to manage T2DM.

In Ayurveda, the term *Madhumeha* (one type of *Prameha*) is used as synonym of diabetes mellitus. Although *Prameha* is a *Tridosha* disease (a disease involving all three of the psycho-physiologic principles termed as *Doshas*), but *Doshas* may get involved in different proportions and produce *Kaphaja*, *Pittaja* and *Vataja Prameha*.¹⁵ *Madhumeha* is a type of *Vataja Prameha* which occurs either due to genetic causes (*Sahaja Pramehi*) or improper management of *Prameha* (*Apathyanimitaja*).¹⁶ *Madhumeha*, therefore, is a terminal stage of *Prameha* and is incurable or extremely difficult to cure.¹⁷

As regards to drugs in Ayurveda, there are so many drugs and formulations but the main drugs are either bitter (*Tikta*) or astringent (*Kashaya*) in taste. They improve the fat and carbohydrate metabolism.¹⁸ The selected herbs (*Kutki* (*Picrorhiza kurroa*),



ii. Efficacy of Ayurvedic polyherbal formulation in Aamvata with reference to Rheumatoid Arthritis.

Abstract

Background: Traditionally, Ayurvedic medicines have been used for the treatment of rheumatoid arthritis (RA) with reference to Aamvata. However, safety and efficacy of ayurvedic medicines have not been evaluated. Therefore, the present study was carried out to evaluate the efficacy and safety of Ayurvedic herbal formulation (Mixture of Sunthi, Guduchi, Guggul and Eranda) in patients with RA.

Methods: Twenty three patients with RA were screened at National Ayurvedic Research and Training Center (NARTC), Kirtipur, Nepal. Patients took Ayurvedic herbal formulation (AHF) twice a day for three months with lukewarm water before meal. The follow up of patients was carried out every two weeks. The primary efficacy end point was based on American College of Rheumatology (ACR) 20 response. Safety assessments were renal

function test (RFT) and liver function test (LFT).

Results: There was no statistically significant difference between before and after intervention in disease parameters of tender joint counts, swollen joint counts, stiffness joint counts, RA factor, CRP, RFT and LFT except for pain assessment score, visual analogue score and ESR. **Conclusion:** Our findings did not suggest the efficacy of AHF in RA. However, due to small sample size, non-randomization and lack of a control group as study limitations, further studies need to be done to confirm these findings.

Medicinal Plant Research

i. An Assessment of Phytochemical, Antioxidant, Antimicrobial properties of medicinally important herbs of Nepal.

Research Summary

Antioxidant activity:

A majority of antioxidants naturally present in foods occur in phenolic structures and especially in flavonoid structures. Free radical scavenging activities of solutions of the plant extracts and synthetic antioxidant substances were prepared in methanol at concentrations of 50, 100 and 200 µg/mL, which is based on the principle of scavenging the DPPH (1,1-diphenyl-2-picrylhydrazyl) radical. DPPH was added to the solutions prepared with plant extracts and standard antioxidant substances and stirred. Each mixture was kept in the dark for 30 min and the absorbance was measured at 517 nm against a blank.

Antimicrobial assay:

Antibacterial test by agar well diffusion method Antibacterial activity tests measure the ability of an antibacterial agent to inhibit bacterial growth in vitro. In agar well diffusion method, small cups (wells) were made by cork-borer in the petri-plate containing the required medium, already inoculated by test organism. The diluted extract is added to the well. After incubation, the diameter of the zones of complete inhibition was measured (including the diameter of the disc) and recorded it in millimeters. The measurements were done with a ruler on the undersurface of the plate without opening the lid.

Objectives:

General:

- An Assessment of Antioxidant, antimicrobial activity of five folklore medicinal plants used by traditional healers in Nepal

Specific:

- Sample collection, identification and preparation of folklore medicinal plants
- Study of antioxidant activity *in vitro*
- Study of antimicrobial activity

Rationale:

- No systematized scientific proof justification about the uses of folklore medicinal plant.
- Even though Nepal is rich in possibly high potent medicinal plant, proper study and characterization has not been done in adequate level.

ii. Antidiabetic activity of aqueous extract of *Jasminumnudiflorum* formulation in alloxan induced diabetic Sprague Dawley rats

Objectives:

General:

- To evaluate the hypoglycemic activity of *Jasminumnudiflorum* leaves in alloxan induced diabetic rats.

Specific:

- To collect, identify and authenticate *Jasminumnudiflorum*
- To determine Physiochemical and estimation of active constituents of *Jasminumnudiflorum* leaves
- To evaluate the hypoglycemic activity of alcoholic and aqueous extract of *Jasminumnudiflorum* in diabetes induced rats.
- To assess the abnormal lipid metabolism in diabetes induced rats.

Rationale:

- Modern understanding of phytochemical is limited due to which various medicinal plants are yet to be researched. Researches on plant help us on development and identification of metabolites that could be used for prevention and treatment of diseases.

Induction of experimental diabetes with Alloxan:

Rats to be induced with diabetes are fasted overnight for 12 hours. Solution of alloxan monohydrate of dose 90mg/kg was injected intraperitoneal. After injecting alloxan solution intraperitoneally they were fed 5 ml of 10% glucose solution to overcome death resulted from compensatory hypoglycemic shock. Animals with random glucose level greater than 140mg/dl after 24-48 hours of administration of alloxan monohydrate were considered to be diabetic and study was continued.

Blood Sample collection and analysis:

Fast blood glucose level of rat was determined before the start of the experiment as baseline level. Then the Blood samples were collected at 0, 1, 3, 7, 14 and 21 days from tail vein puncture till the end of the study. On day 21 bloods were collected by cardiac puncture under mild anesthesia (isoflurane) from overnight fasted rat. Clear supernatant serum was prepared in eppendorf tube for analysis of fasting blood glucose level (by GOD-POD method).

Results:

Table 2 Effects of ethanolic extract of *Jasminum nudiflorum* on the Blood glucose level

Group	Treatment (mg/kg of Body weight)	Blood Glucose Level (mg/dl)					
		Mean $\pm$ SD					
		Day 1	Day 3	Day 5	Day 7	Day 14	Day 21
I	Normal Control	114.4 $\pm$ 3.8	108.6 $\pm$ 4.3	106.2 $\pm$ 4.3	114 $\pm$ 9.1	112.8 $\pm$ 7.7	113.8 $\pm$ 8.9
II	Diabetic Control	111 $\pm$ 6.4	158 $\pm$ 8.2	189 $\pm$ 12.4	173.2 $\pm$ 12.5	146 $\pm$ 14.1	123.8 $\pm$ 10.8
III	Diabetic + metformin (15microgram/kg)	105.2 $\pm$ 3.7	129 $\pm$ 14.5	136.8 $\pm$ 8.7	120 $\pm$ 7	104.4 $\pm$ 8.3	77.2 $\pm$ 3.7
IV	Diabetic + Eth. Extract (200mg/kg)	110.4 $\pm$ 8.3	150 $\pm$ 2.9	180.4 $\pm$ 3.9	165 $\pm$ 3.1	142.6 $\pm$ 7.6	120 $\pm$ 9.1
V	Diabetic + Eth. Extract (300mg/kg)	112.8 $\pm$ 7.5	148.4 $\pm$ 4.6	168.4 $\pm$ 3.8	155.6 $\pm$ 4.5	135.8 $\pm$ 6.97	118.4 $\pm$ 3.5
VI	Diabetic + Eth. Extract (500mg/kg)	115.8 $\pm$ 17.1	141.4 $\pm$ 11.2	149.4 $\pm$ 4.9	147.2 $\pm$ 5	128.8 $\pm$ 8.1	105.2 $\pm$ 1

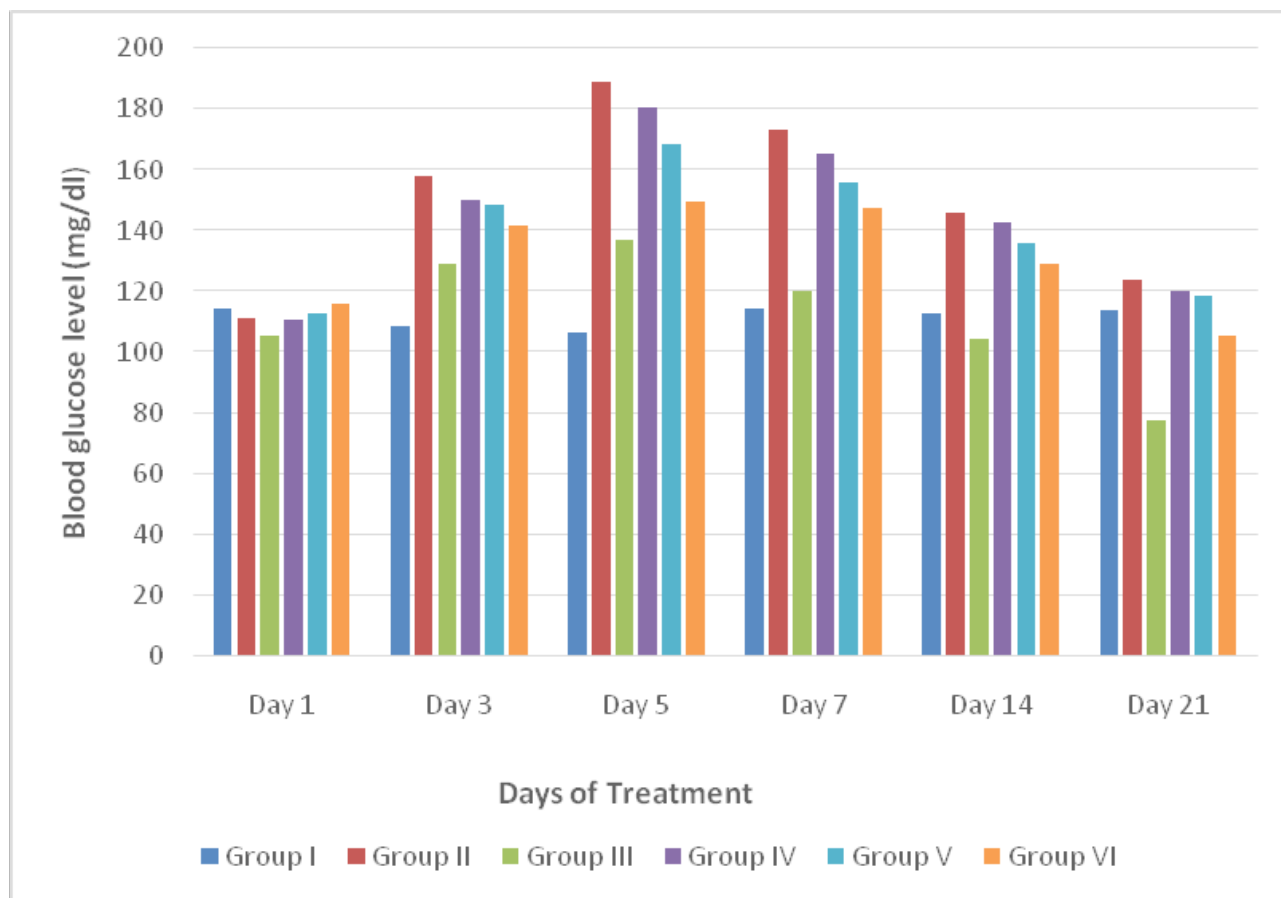


Figure 3 Effect of different treatments on blood glucose in alloxan induced diabetic rats

iii. Study of In Vitro Anti-cancer activity of alcoholic extract of *Nigella sativa* seeds on HeLa cell lines

Abstract:

Background:

Nigella sativa is a native plant of Nepal growing at elevations of 1500–2500 m. The seeds of *N. sativa* are considered as an important nutritional flavoring agent and natural remedies for various ailments for hundreds of years in ancient systems of medicines like Ayurveda, Chinese and Arabic medicines. Different active components such as thymoquinone, thymol, thymohydroquinone, nigellidine and nigellidine have been isolated from *N. sativa*. Oils, various extracts and active components are identified to be effective in immune stimulation, anti-inflammation, antihypertensive, antimicrobial, antiparasitic, hypoglycemic, antiasthmatic, antioxidant and anticancer effects. The present work is aimed at investigating the anticancer potential of ethanol extracts of *N. sativa* seed against normal and HeLa cells.

Methods:

The dried seeds were first grinded and the fine powder then treated with ethanol. The bioactive compounds from *N.sativa* seeds were extracted using Soxhlet apparatus. The study was performed at different concentrations such as 50µg/ml, 50µg/ml, 100µg/ml, 200µg/ml and 400µg/ml. MTT assay was carried to determine the cell viability and IC₅₀ values. IC₅₀ values for HeLa and normal cell lines were compared against standard cisplatin.

Results:

Results of the MTT assay showed that ethanolic seeds extract caused a dose dependent decrease in the HeLa cell viability (IC₅₀: 375. 2µg/ml). In contrast, other lower concentrations did not show any significant activity whereas standard Cisplatin showed effective result against HeLa cell line with IC₅₀: 25µg/ml.

Conclusions:

This ability of the extract proved the anti-cancer property of *Nigella sativa* seeds extract and the present study enables further studies on the isolation and characterization of an anticancer molecule from the seeds of *N. sativa*.

Epidemiological Research

i. The prevalence of Type 2 Diabetes mellitus in 4 different areas of Nepal

Abstract

Although there are different epidemiological studies for the prevalence of Type 2 diabetes mellitus (T2DM) in Nepal, simultaneous conduction of studies in different areas of Nepal is relevantly poor in context of Nepal. The patients often avoid regular clinical examination in small town areas of Nepal leading to late diagnosis and treatment of T2DM. So, we aim to design the study among the people visiting health camp at different areas in Nepal. In the present study, out of 2143 participants, the overall prevalence of T2DM was found to be 4.2 %. Among the diagnosed T2DM participants, the mean age was 51.2 years with higher frequency in male (80%) than female (20%). In the present study, T2DM participants were more likely to be obese. This study may contribute to epidemiological knowledge about the prevalence of T2DM among Nepalese population.

Research papers of fiscal year 2077/78

i. The Prevalence of Anorectal Disorders among Residents of Kirtipur Municipality in Nepal

1

International Journal of Collaborative Research on Internal Medicine & Public Health

The Prevalence of Anorectal Disorders among Residents of Kirtipur Municipality in Nepal

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Abstract

Background: Epidemiological knowledge is very poor in regards to anorectal disorders. The patients do not often discuss perianal symptoms leading to late diagnosis and treatment. There is a need of doing systematic questioning and clinical evaluation of the population to assess the prevalence of anorectal disorders.

Aim and objectives: The aim of this study is to assess the prevalence of anorectal disorders among the residents of Kirtipur municipality in Nepal.

Methods: The first section was the cross-sectional survey to assess the demographic and lifestyle characteristics of the study population. The second section was the observation study to assess the prevalence of anorectal symptoms. 1483 patients were recruited from 10 wards of Kirtipur municipality. We analyzed the comparison of diagnostic approach between patients with perianal symptoms spontaneously visited and those revealed after targeted questioning. We further analyzed the reason for not performing perianal examination by both patients and general practitioners. Factors associated with referral to a proctologist and diagnosis rate were also evaluated.

Results: The study showed that the prevalence of anorectal symptoms increased from 9.4% to 21.2% after systematic targeted questioning by general practitioners. Spice intake was the only covariate associated with decrease risk of proctological symptoms. Haemorrhoids (31.2%) and anal fissure (28.7%) were the most prevalent anorectal disorders. However, physicians have diagnosed anorectal disorders in 20.2% of patients without performing any perianal examination. Diagnosis of haemorrhoids and fistula in ano were significantly associated with referral to a proctologist.

Conclusion: This study may contribute to epidemiological knowledge about the prevalence of anorectal disorders among Nepalese population.

Keywords: Anorectal disorders; Prevalence; Nepal

Abbreviations

NARTC: National Ayurveda Research and Training Center; CI: Confidence Interval; OR: Odds Ratio; SPSS: Statistical Package for Social Sciences; ENT: Ear: Nose and Throat; VDC: Village Development Committee.

Background

Anorectal disorders are one of the most common reluctant disorders and affect about one-fourth of the population [1]. Anorectal disorders are either structural or functional abnormalities of the pelvic floor in patients with symptoms, such as difficulty in defecation, fecal incontinence, rectal bleeding, anorectal pain, and rectal prolapse [2,3]. Anorectal disorders include benign conditions such as haemorrhoids to severe conditions such as anorectal cancers. The most common anorectal disorders are haemorrhoids, anal fissures, anorectal abscesses and fistulae, fecal incontinence and pruritus ani. A careful history taking of presenting symptoms, visual inspections, digital rectal examinations along with relevant tests help in diagnosis of anorectal disorders [4].

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ii. Effect of *Gymnema sylvestre* (Gurmar) in Patients Diagnosed with Type 2 Diabetes mellitus in Kathmandu Valley



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ORIGINAL RESEARCH ARTICLE

Effect of *Gymnema sylvestre* (Gurmar) in Patients Diagnosed with Type 2 Diabetes mellitus in Kathmandu Valley

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Co Authors: Sirjana Shrestha², Ram Adhar Yadav³, Ruby Bajracharya⁴ and Jitendra Shrestha⁵

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ABSTRACT

Introduction:

Diabetes mellitus is a growing public health concern in the Southeast Asia region (SEAR), where more than 87.6 million people are living with diabetes. *Gymnema sylvestre* (Gurmar), a medicinal herb, is commonly used as herbal medicine to treat diabetes.

Objectives:

The present study was aimed to examine the effect of *Gymnema sylvestre* (*G. sylvestre*) among patients diagnosed with Type 2 Diabetes mellitus (T2DM) in Nepal.

Materials and Methods: The present study was an open-label uncontrolled clinical trial. Eligible participants were patients aged 30 to 60 years and diagnosed with T2DM. A total of 43 eligible participants were supplemented with 6 gm of *G. sylvestre*, daily for 4 weeks during the study period. Anthropometric and biochemical variables were evaluated by comparing data at baseline and at 4 weeks after starting treatment using chi-square and student's *t*-test.

Results:

There was a decrease in the fasting and post-prandial glucose levels of the participants by 19.3% and 16.7%, after treatment with *G. sylvestre*, respectively. There were no significant changes observed in other clinical variables before and after treatment with *G. sylvestre*.

Conclusion:

This study suggests that the use of *G. sylvestre* leaf has a potential hypoglycemic action in patients with T2DM. However, further studies are needed to confirm the beneficial effect of *G. sylvestre* in T2DM.

Key Words: *Gymnema sylvestre*, Type 2 Diabetes mellitus, Nepal

INTRODUCTION

Diabetes mellitus is a growing public health concern in the Southeast Asia region (SEAR),

where more than 87.6 million people are living with diabetes¹. South Asians are known to have an increased predisposition for Type 2 Diabetes

iii. Efficacy of Ayurvedic herbal formulation and Ayurvedic herbo-mineral formulation in hypothyroidism patients

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Efficacy of Ayurvedic herbal formulation and Ayurvedic herbo-mineral formulation in hypothyroidism patients

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ABSTRACT

Background: Hypothyroidism is one of the major endocrine disorders seen in general population worldwide. Although modern drugs are quite effective in managing hypothyroidism, it is subject to sustaining certain side effects. So, we aim to evaluate the efficacy of Ayurvedic herbal formulation and Ayurvedic herbo-mineral formulation in managing hypothyroidism in Nepalese population. **Methods and analysis:** This study was a randomized, double-blind, and controlled trial. A total of 50 participants with the diagnosis of hypothyroidism was randomly assigned to the intervention group or control group in a ratio of 1:1 for 4 weeks. The primary outcome measure was the thyroid-stimulating hormone level, and secondary outcome measures was the change in body mass index, waist-hip ratio, blood glucose level, lipid profile, liver function tests and renal function tests between the baseline and at 4 weeks after intervention. Statistical analysis was done by comparing categorical variables using chi-square test and Fisher's exact test and comparing continuous variables using paired and unpaired student's t test. **Results:** There was a decrease in TSH levels of the participants by 12.5% and 7.9%, after intervention with AHF and AHMF, respectively. There were a small statistical significant difference only in waist-hip ratio ($p=0.04$) when compared before and after treatment with AHF and AHMF whereas there was no significant changes observed in other clinical variables after intervention with AHF and AHMF. **Conclusion:** This study may provide new evidence for the effectiveness of Ayurvedic herbal formulation and Ayurvedic herbo-mineral formulation in hypothyroidism in context of Nepal.

Keywords: Ayurvedic herbal formulation, Ayurvedic herbo-mineral formulation, Hypothyroidism, Nepal.

INTRODUCTION

Hypothyroidism is one of the major endocrine disorders seen in general population worldwide. It occurs due to the deficiency of thyroid hormones and leads to the reduction of basal metabolic rate, affect physical and mental growth during infancy or childhood [1]. The prevalence of hypothyroidism in the developed world and Nepal is 4.6% and 13%, respectively [2-4].

Thyroxine (T4) and tri-iodothyronine (T3) are the two hormones secreted by the thyroid gland for maintenance of body homeostasis. Disorders of the thyroid gland can stimulate the overproduction of thyroid hormones or cause glandular destruction and hormone deficiency. Hypothyroidism is defined as reduced production of thyroid hormones [5]. The causes of hypothyroidism are usually divided primary, secondary and tertiary hypothyroidism. The permanent loss or destruction of the thyroid by autoimmune diseases, irradiation injury etc. is called peripheral or primary hypothyroidism, which is the cause of approximately 99% of cases of hypothyroidism. Insufficient stimulation of the normal thyroid gland as a result of hypothalamic and pituitary defects in the thyroid stimulating hormone (TSH) molecule is described as central or secondary and tertiary hypothyroidism, respectively and is accounted for less than 1% of all cases throughout the world [6-8]. The common signs and symptoms of hypothyroidism are fatigue, lethargy, constipation, cold intolerance, weight gain, hoarse voice, pale and dry skin, brittle fingernails and hair, a puffy face, an elevated blood cholesterol level, muscle aches, tenderness, stiffness and weakness, pain, stiffness of swelling in the joints, heavier than normal menstrual periods, and depression. Hypothyroidism in infants and teenagers may result in poor growth and mental development as well as delayed development of permanent teeth and puberty [7]. Diagnosis of categories of hypothyroidism is based on an appropriate laboratory evaluation. TSH assays is preferred as the primary test to establish the diagnosis of primary hypothyroidism whereas free thyroxine (fT4) or total thyroxine are more important measures for the diagnosis of secondary or tertiary hypothyroidism. In addition to these tests, thyroid peroxidase (TPO) antibodies (TPOAbs), thyroglobulin antibodies, thyroid scans, and ultrasonography may be included to diagnosis the cause of hypothyroidism. In primary abnormality of thyroid function, serum TSH is elevated with normal serum fT4. Autoimmune thyroid disease is detected mostly by measuring circulating antibodies against TPO. Autoimmune process gradually reduces the thyroid function, and there is a compensation phase when the normal thyroid hormone levels are maintained

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A. TRAINING ACTIVITIES

Training and Certificate Distribution

NARTC stepped forward to achieve its training programs set up for fiscal year 2078-079. NARTC had conducted 8 training programs and some awareness programs for the year. A total of 123 Ayurveda Doctors and 65 Ayurveda Paramedics and Health workers were trained and around 300 general public were given awareness programs regarding the importance of Ayurveda this year. The training programs were organized on different dates within a year. Because of the ongoing pandemic situation, we were unable to bring resource person physically so this year we conducted some training through webinar where participants were physically present in our center by maintaining physical distance in the classroom and resource person trained the participants through webinar. The following were the training activities given below:

1. Event I: Training and Workshop on Agnikarma

NARTC conducted the training for 3 days from 4th of Ashoj to 6th of Ashoj, 2078 BS where twenty-six Ayurveda Dpctorss were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Mahesh V. Sanghai, Senior Ayurvedic Consultant Pioneer in Kshar-sootra ,Agnikarma , Rakta-mokshan .Propogator& Master of hands on training programme and Prof. Dr. Yubus G. Solanki, M.S. Ayu.(Mumbai), R. A. Podar Medical College (Ayu.), Worli, Mumbai, India were the chief resource person during the training program. The closing ceremony featured with presence of Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC and Dr. Ram Adhar Yadav, Executive Director, NARTC.

2. Event II: Training and Workshop on Agnikarma

NARTC conducted the training for 3 days from 7th of Ashoj to 9th of Ashoj, 2078 BS where twenty-six Ayurveda Dpctorss were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Mahesh V. Sanghai, Senior Ayurvedic Consultant Pioneer in Kshar-sootra ,Agnikarma , Rakta-mokshan .Propogator& Master of hands on training programme and Prof. Dr. Yubus G. Solanki, M.S. Ayu.(Mumbai), R. A. Podar Medical College (Ayu.), Worli, Mumbai, India were the chief resource person during the training program. The closing ceremony featured with presence of Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC, Dr. Shivmangal Prasad, Campus Chief; Ayurveda Campus, Kirtipurand Dr. Ram Adhar Yadav, Executive Director, NARTC.





3. Event II: Training on Clinical Application of Marma Chikitsa

NARTC conducted the training for 3 days from 11th to 13th Kartik 2078 BS, where twenty-three Ayurveda Doctors were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Shishir Prasad M.S. (Ay). Associate Professor P.G. Dept of Shalya Tantra Uttarakhand Ayurved University Member Expert Committee on Marma Chikitsa CCRAS, Govt of India was the chief resource person during the training program. The closing ceremony featured with the presence of Hon'ble Mr. Rajan KC, Member of Constituent Assembly, Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC, and Dr. Ram Adhar Yadav, Executive Director, NARTC, including resource person of the training.



4. Event IV: Basic Training and Workshop on Marma Therapy

NARTC conducted the training on Marma Chikitsa for 3 days from 14th to 16th Mangsir, 2078 BS where eighteen Ayurveda Paramedics were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Sunil Kumar Joshi, MS (Shayla Tantra), Professor and Head of the Department (Gurukul Kangari State Ayurvedic College, Haridwa) was the chief resource person throughout the training period through webinar. The closing ceremony featured with presence of Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC and Dr. Ram Adhar Yadav, Executive Director, NARTC.



5. Event V: Basic Training on Panchakarma Chikitsa and clinical application of Marma Therapy

NARTC conducted the training on Basic Training on Panchakarma Chikitsa and clinical application of Marma Therapy for 3 days from 8th to 10th Chaitra, 2078 BS where twenty Ayurveda Paramedics were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Sunil Kumar Joshi, MS (Shayla Tantra), Professor and Head of the Department (Gurukul Kangari State Ayurvedic College, Haridwa) was the chief resource person throughout the training period through webinar. The closing ceremony featured with presence of Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC, Prof. Dr. Dev Bahadur Roka, Chairman NARTC and Dr. Ram Adhar Yadav, Executive Director, NARTC.



6. Event VI: Basic Training on PanchakarmaChikitsa and clinical application of Marma Therapy

NARTC conducted the training on Basic Training on PanchakarmaChikitsa and clinical application of Marma Therapy for 3 days from 22nd to 2th Chaitra, 2078 BS where twenty Ayurveda Paramedics were trained during the workshop. The participants were selected from 7 provinces of Nepal. Dr. Sunil Kumar Joshi, MS (Shayla Tantra), Professor and Head of the Department (Gurukul Kangari State Ayurvedic College, Haridwa) was the chief resource person throughout the training period through webinar. The closing ceremony featured with presence of Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC, Prof. Dr. Dev Bahadur Roka, Chairman, NARTC and Dr. Ram Adhar Yadav, Executive Director, NARTC.

7. Event VII: Training and Workshop on Basti Therapy

NARTC conducted the Training and Workshop on Basti Therapy for 3 days from 5th to 7th Baishakh, 2079 BS where forty-one Ayurveda Doctors were trained during the workshop. The participants were selected from 7 provinces of Nepal. Facilitator were Vaidya Bhattad Satish, B.A.M.S., Ph.D, FIIM, Shreeji Ayurvedic Panchakarma Hospital and Research center (Est.1992) Shamdwar, Namdeo Mandir Road, Shrirampur and Dr. Ramdas Avhad; Am Rastriya Ayurveda Guru (Rastriya Ayurveda Vidhyapeeth, Dhanwantari Ayurveda Hospital, Kopargaon Maharashtra, India. The closing ceremony featured with presence Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC, Dr. Ram Adhar Yadav, Executive Director, NARTC and Prof. Dr. Dev Bahadur Roka, Chairman, NARTC.

8. Event VIII: Basic Training and Workshop on Clinical Application of Kshar-Sutra Chikitsa

NARTC conducted the Basic Training and Workshop on Clinical Application of Kshar-Sutra Chikitsa for 3 days from 8th to 10th Jestha, 2079 BS where twenty-two Ayurveda Paramedics were trained during the workshop. The participants were selected from 7 provinces of Nepal. The closing ceremony featured with presence Prof. Dr. Dhanik Lal Bharkher, Chairman, Nepal Ayurveda Medical Council and Dr. Ram Adhar Yadav, Executive Director, NARTC.

9. Event IX: Stress Management Program

NARTC conducted one-day Stress Management Program for Executive on 4th of Ashad, 2079 BS where twenty-one executives from Office of the Prime Minister & Council of Ministers had participated in the program. The program featured with presence Prof. Dr. Dhanik Lal Bharkher, Former Chairman, NARTC and Dr. Ram Adhar Yadav, Executive Director, NARTC.



Annex 1: Training on Agnikarma

Date 2078.06.04 to 2078.06.06

S.N	Name
1	Dr. Ramesh Acharya
2	Dr. Sanjeev Kumar Yadav
3	Dr. Anil Kumar Yadav
4	Dr. Surya Narayan Mehta
5	Dr. Shiva Shankar Ray
6	Dr. Shivanarayan Prasad Gupta
7	Dr. Srishti Shrestha
8	Dr. Rojina Tamrakar
9	Dr. Manoj Kumar Chaudhary
10	Dr. Arjun Upadhyaya
11	Dr. Suresh Maharjan
12	Dr. Anju Karki
13	Dr. Pooja Lekhak
14	Dr. Saroj Kumar Ray
15	Dr. Kiran Kamal Bastakoti
16	Dr. Pravesh Srivastava
17	Dr. Nalin Nath Tiwari
18	Dr. Om Prakash Chaudhary
19	Dr. Smriti Titaju
20	Dr. Ajay Kumar Chaudhary
21	Dr. Jitendra Kumar Mandal
22	Dr. Sirjana Shrestha
23	Dr. Nani Maiya Gurung
24	Dr. Ujjwal Chandra Ray
25	Bijay Kumar Jha
26	Dr. Ishwor Gyawali

Annex 2: Training on Agnikarma

Date 2078.06.07 to 2078.06.09

S.N	Name
1	Dr. Devendra Kumar Yadav
2	Dr. Puneshwar Keshari
3	Dr. Sudarshan Pokhrel
4	Dr. Dhanbir Budha
5	Dr. Sharad Panthi
6	Dr. Ram Prabodh Mandal
7	Dr. Ashok Kumar Mahato
8	Dr. Upendra Kumar Yadav
9	Dr. Raj Kumar Mahato
10	Dr. Santosh Kumar Yadav
11	Dr. Rabindra Kumar Yadav
12	Dr. Sone Lal Sah
13	Dr. Sunil Kawan
14	Dr. Samichha Neupane
15	Dr. Laxmi Prasad Sharma
16	Dr. Pragya Upadhyaya
17	Dr. Bikash Raj Ghimire
18	Dr. Shatrughn Prasad Sah
19	Dr. Akhilesh Kumar Jha
20	Dr. Surya Upadhyaya
21	Dr. Pragya Panthi
22	Dr. Tulasi Shrestha
23	Dr. Rohit Yadav
24	Dr. Mithilesh Kumar Singh
25	Dr. Nabin Jha

26	Dr. Kumar Kasula
27	Dr. Kamal Bikram Poudel
28	Dr. Amrit Bhandari
29	Dr. Amitman Joshi
30	Dr. Ruby Bajracharya
31	Dr. Subhadra Karki
32	Pramod Kumar Yadav
33	Dr. Nirmala Suwal
34	Dr. Niraj Yogi
35	Dr. Jitendra Shrestha

Annex 3: Training on Clinical Application of Marma Chikitsa

Date 2078.07.11 to 2078.07.13

S.N	Name
1	Dr. Vinay Kumar
2	Dr. Kumar Kasula
3	Dr. Bharat Prasad Shah
4	Dr. Roshan Baskota
5	Dr. Subodh Mishra
6	Dr. Sudarshan Pokhrel
7	Dr. Pankaj Kumar Sah
8	Dr. Surya Upadhyaya
9	Dr. Raj Kumar Sah
10	Dr. Samichha Neupane
11	Dr. Nabaraj Bohara
12	Dr. Anil Thapa
13	Dr. Tulasi Shrestha
14	Dr. Shraban Kumar Shrestha

15	Dr. Kamal Bikram Poudel
16	Dr. Laxmi Prasad Sharma
17	Dr. Dipendra Ranabhat
18	Dr. Bijendra Sah
19	Dr. Nirmal Bhusal
20	Dr. Bikash Raj Ghimire
21	Dr. Umesh Kumar Mehta
22	Dr. Netra Bahadur Basnet
23	Dr. Jitendra Kumar Mandal

Annex 4: Training on Clinical Application of Marma Chikitsa

Date 2078.08.14 to 2078.08.16

S.N	Name
1	Ramesh Prasad Paneru
2	Ramsewak Yadav
3	Premshankar Prasad
4	Rajendra Prasad Dhungana
5	Arun Yadav
6	Gaurishankar Sah
7	Rabindra Prasad Bhattarai
8	Rakesh Kumar Yadav
9	Jitendra Prasad Sah
10	Babita Kumari Sah
11	Laxmi Narayan Yadav
12	Sudeep Mahato
13	Chandraoli Shah
14	Santosh Shah
15	Sonika Nepal

16	Prerna Lamichhane
17	Jibachha Kumar Pajiyar
18	Govinda Prasad Gaihre

Annex 5: Training on Panchakarma Chikitsa and Clinical Application of Marma Therapy

Date 2078.12.08 to 2078.12.10

S.N	Name
1	Ganesh Yadav
2	Krishna Bahadur Kathayat
3	Ajaya Sharma
4	Dol Raj Poudel
5	Bishnu Prasad Regmi
6	Manjit Kumar Yadav
7	Rekha Gupta
8	Durga Devi Aryal
9	Nira Kumari Chaudhary
10	Monika Chaudhary
11	Narayan Prasad Sigdel
12	Shankar Pandit
13	Prakash Yadav
14	Mukesh Kumar Jha
15	Ram Prabesh Kumar Yadav
16	Ajaya Kumar Varma
17	Nanda Kishor Ray Yadav
18	Pratibha Karki
19	Yanu Joshi
20	Poonam Yadav

Annex 6: Training on Panchakarma Chikitsa and Clinical Application of Marma Therapy

Date 2078.12.22 to 2078.12.24

S.N	Name
1	Bhawani Kafle
2	Kumari Bimala Chaudhary
3	Rekha Bakhariya
4	Nisha Chaudhary
5	Arjun Dangaura
6	Nabin Chaudhary
7	Shyam Kumar Mishra
8	Hari Aryal
9	Manoj Bhagat
10	Surendra Prasad Yadav
11	Kapil Dev Sah
12	Surendra Kumar Yadav
13	Ram Bishwas Ray
14	Raushan Ray
15	Indu Koirala
16	Jitendra Prasad Sah
17	Ram Pratap Sah
18	Ashok Kumar Jha
19	Durga Silwal
20	Jibachha Kumar Pajiyar

Annex 7: Training on Basti Therapy

Date 2079-01-05 to 2079.01.07

S.N	Name
1	Dr. Shraddha Poudel
2	Dr. Sabita Bhandari
3	Dr. Shubhechchha Lamichhane
4	Dr. Nirmal Suwal
5	Dr. Nani Maiya Gurung
6	Dr. Poonam Nepal
7	Dr. Chet Raj Joshi
8	Dr. Dilip Kumar Yadav
9	Dr. Rohit Yadav
10	Dr. Mithilesh Kumar Singh
11	Dr. Saroj Kumar Jha
12	Dr. Sharad Panthi
13	Dr. Romharsha Nepal
14	Dr. Gopal Neupane
15	Dr. Rajeev Ghimire
16	Dr. Kenin Rai
17	Dr. Sachin Shani
18	Dr. Binita Tiwari
19	Dr. Dipendra Ranabhat
20	Dr. Sirjana Shrestha
21	Dr. Anita Bhusal
22	Dr. Nischal Gupta

23	Dr. Akhilesh Kumar Jha
24	Dr. Umesh Kumar Mehta
25	Dr. Kumar Kasula
26	Dr. Saroj Kumar Ray
27	Dr. Kalawati Bishwokarma
28	Dr. Anil Kumar Yadav
29	Dr. Nabin Jha
30	Dr. Upendra Kumar Yadav
31	Dr. Rishi Keshab Bhusal
32	Dr. Nitesh Kandau
33	Dr. Manoj Kumar Chaudhary
34	Dr. Maharudra Kumar Thakur
35	Dr. Subhadra Karki
36	Dr. Ashok Kumar Mahato
37	Dr. Shiva Narayan Prasad Gupta
38	Dr. Amit Man Joshi
39	Dr. Ujjwal Chandra Ray
40	Dr. Raj Kumar Sah
41	Dr. Jitendra Shrestha

Annex 8: Training on Clinical Application of Kshar-Sutra Chikitsa

Date 2079.02.08 to 2079.02.10

S.N	Name
1	Babita Kumari Sah
2	Abid Husain
3	Uddhav Bhattarai
4	Rabindra Kumar Mehta
5	Khagendra Bhattarai
6	Janak Bahadur Thapa
7	Harindra Sah
8	Narayan Prasad Wosti
9	Arjun Thapa
10	Alisha Joshi
11	Ram Krishna Bhujel
12	Basant Bahadur KC
13	Dr. Ram Babu Sah
14	Pramodh Kumar Yadav
15	Dr. Raj Kumar Mahato
16	Nabin Kiran Bhusal
17	Som Kanta Poudel
18	Deepandra Kandel
19	Bimal Kumar Shrestha
20	Pradip Kumar Mandal
21	Nishant Sharma
22	Deepak Raj Pant

Agnikarma



Agnikarma



Agnikarma



Agnikarma



Agnikarma



Health Camp in Bara District



Health Camp in Bara District



Health Camp in Manohari



Health Camp in Manohari



Health Camp in Manohari



Health Camp in Manohari



Health Camp in Manohari



Stress Management and Yoga Training



Stress Management and Yoga Training



Stress Management and Yoga Training



Training on Basti Therapy



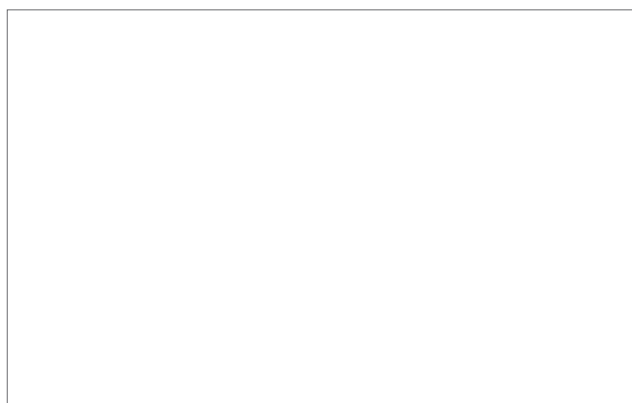
Training on Basti Therapy



Training on Basti Therapy



Training on Marma Therapy



Training on Panchakarma and Marma Therapy



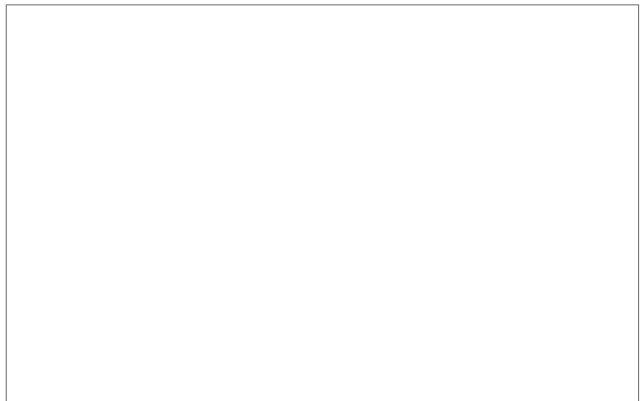
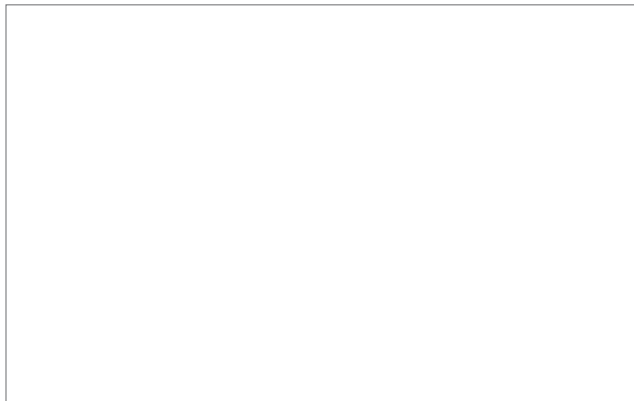
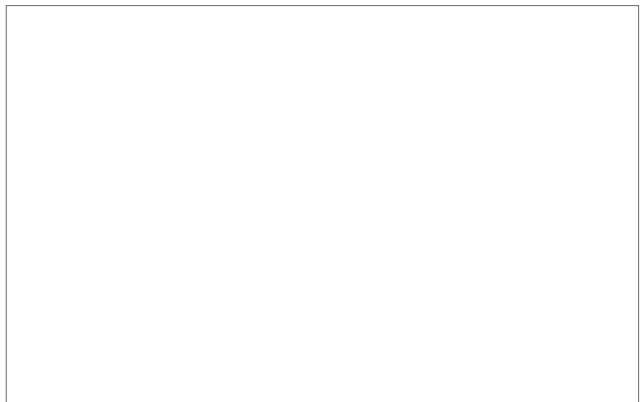
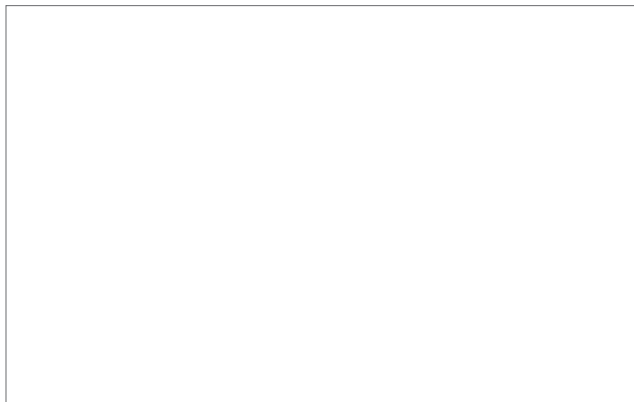
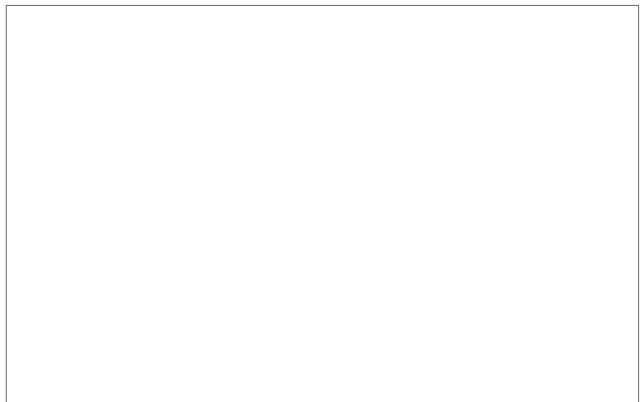
Training on Panchakarma and Marma Therapy



Training on Panchakarma and Marma Therapy



Miscellaneous



Research Dissemination



Research Dissemination



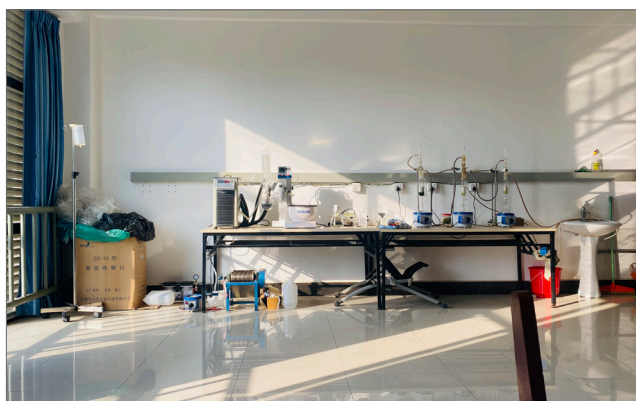
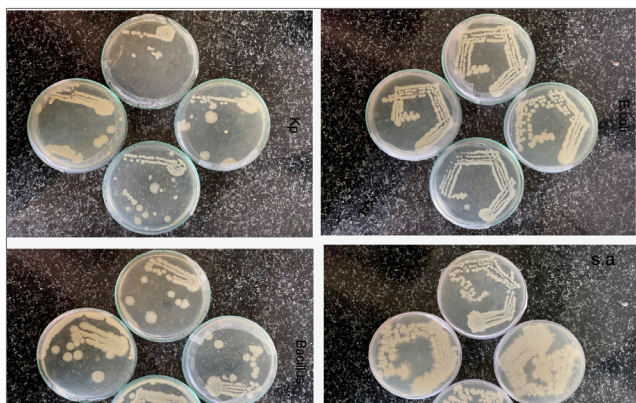
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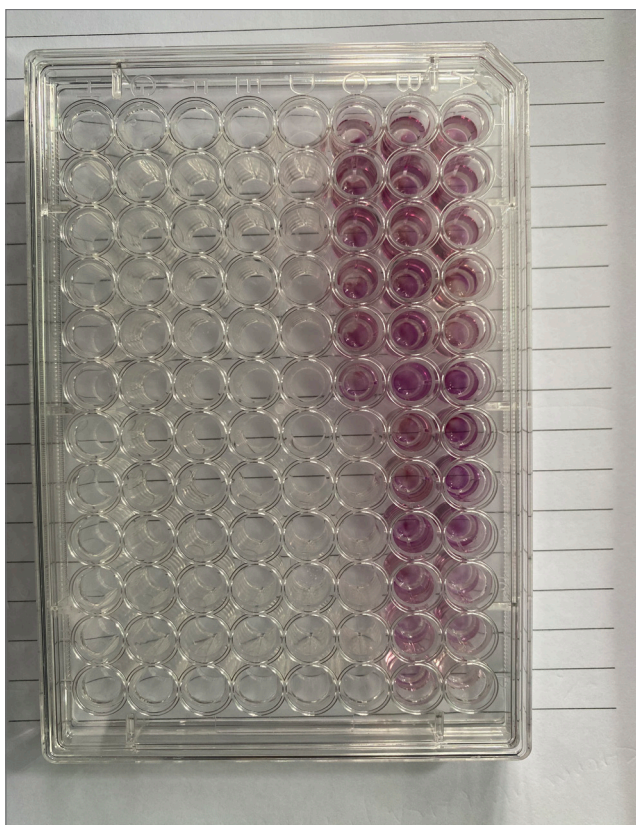
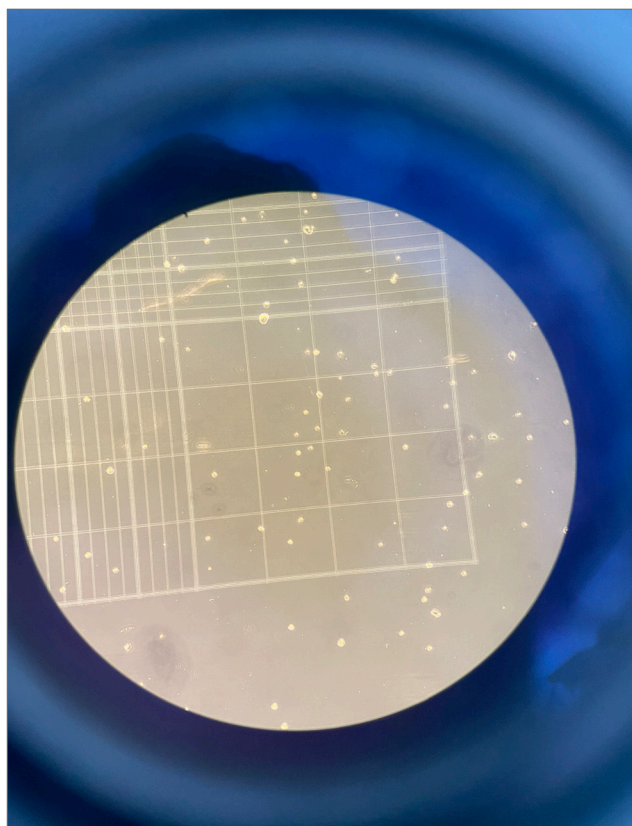
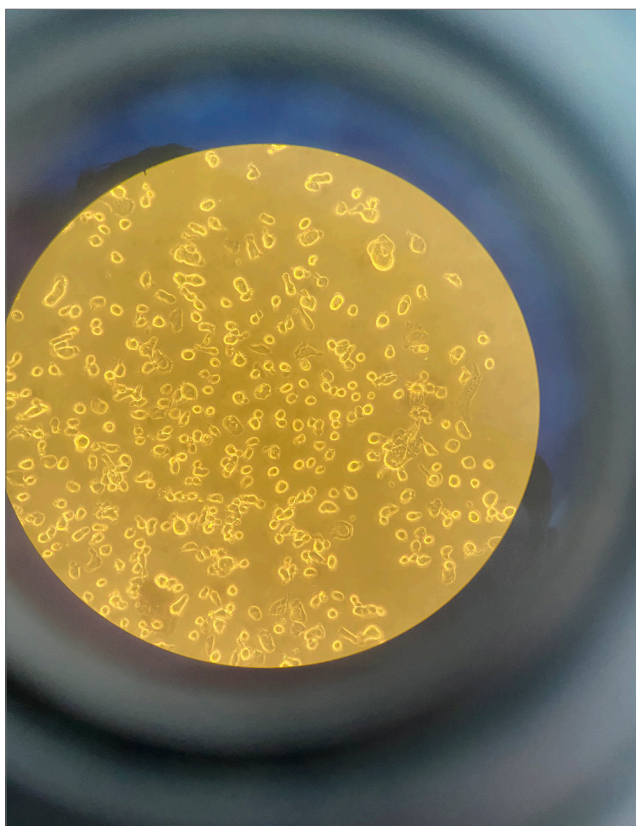
Research Dissemination



Research Dissemination



Research Dissemination



प्राविधिक विशेषज्ञको प्रतिवेदन

१. नमूना परीक्षण गर्ने पठाउने व्यक्ति/निकाय:- श्री Kantipur Valley College, Kumaripati Lalitpur

१(क) विद्यार्थीहरूको नाम:- Mr. Bholesh Yadav, Ms. Jenisha KC, Ms. Mamata Jaiswal and Mr. Sibesh Maharjan

२. प्राप्त नमूनाको विवरण:- वनस्पतिको नमूना ५ थान।

३. यस कार्यलयमा प्राप्त मिति:- २०७८/१२/१७

४. परीक्षणका आधारहरू:- (क) हर्बेरियममा भएको नमूनाहरू संगको तुलनात्मक अध्ययन ।
(ख) सन्दर्भ सामग्रीहरूको अध्ययन ।

५. पहिचान प्रतिवेदन:- प्राप्त नमूनाको Morphological अध्ययन र यस राष्ट्रिय हर्बेरियम तथा वनस्पति प्रयोगशालाको हर्बेरियममा राखिएका नमूनाहरू संगको तुलनात्मक अध्ययन गर्दा उक्त नमूनाहरू निम्नानुसार पहिचान हुन गएको ।

S. No	Scientific Name	Family	Remarks
1	<i>Jasminum mesnyi</i> Hance	Oleaceae	
2	<i>Taxus wallichiana</i> Zucc. var. <i>mairei</i> (Lemee & H. Lev.) L.K.Fu & N. Li	Taxaceae	
3	<i>Nigella sativa</i> L.	Ranunculaceae	
4	<i>Urtica parviflora</i> Roxb.	Urticaceae	

६. परीक्षण गर्ने अधिकारी:- तिल कुमारी थापा
अनुसन्धान अधिकृत
(२३३३४९)

Research Dissemination

