

**CENTRE FOR SCIENCE & TECHNOLOGY OF THE NON-ALIGNED AND OTHER
DEVELOPING COUNTRIES (NAM S&T CENTRE)**

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**INTERNATIONAL WORKSHOP
ON
DRUGS DEVELOPMENT FROM HERBS AND MARINE MEDICINAL MATERIALS**

**HAI PHONG, VIETNAM
10-12 DECEMBER, 2018**

BRIEF REPORT

Natural products have been the major sources of drugs and drug candidates, and this remains true to date. Recently, there has been an increasing interest in the study of natural products of marine origins. Although still facing many challenges, marine natural products are forecasted to play a central role in new drug development programmes. Pharmaceutical industries in advanced nations have exploited the exquisite and complex structures, potent and often highly selective ability to bind to biological targets of natural molecules for their products and business developments. However, even though most of the non-aligned and other developing countries possess great biodiversity and high potential for natural products research, they have still not been able to effectively utilise their valuable resources for new drug developments.

In order to foster the great benefits of natural products, especially marine natural resources, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with the Hai Phong University of Medicine and Pharmacy (HPMU), Vietnam organised an **International Workshop** on '**Drugs Development from Herbs and Marine Medicinal Materials**' at Hai Phong, Vietnam during **10-12 December 2018**.

The three day International Workshop successfully held at the Hai Phong University of Medicine and Pharmacy (HPMU) was a dynamic event held with the objective to update and evolve strategies for the utilisation of terrestrial and marine natural resources in new drug developments and focus the attention of the non-aligned and other developing countries on the global trend of research and development for new drugs from natural resources. The participants of the Workshop were actively involved in screening the potential of terrestrial and marine natural resources in new drugs development.

The Programme started with the acquaintance of delegates to Vietnam through cultural performances by HPMU Students. The Opening Ceremony commenced with an address to the delegates by **Prof. Dr. Nguyen Van Hung**, Acting-President, HPMU, who welcomed the participants and briefly highlighted the importance of natural products in new drug developments. **Prof. Dr. Arun P. Kulshreshtha**, Director General, NAM S&T Centre, in his address presented the genesis of the event and also briefly described the activities of the NAM S&T Centre, inter-governmental organisation headed by him. During his address, he also introduced **Dr. Amitava Bandopadhyaya**, the Director General (Designate) of the NAM S&T Centre. An inspirational address was then made to the audience by **Dr. Pham Vu Khanh**, Head

of Traditional Administration Department, Ministry of Health, Vietnam who highlighted the importance of traditional medicines in Vietnam and other Asian countries and emphasised that the scientific methods of developing remedies should be improved and upgraded by combining several ingredients including terrestrial and marine medicinal materials for developing new drugs in NAM and other developing countries. The Opening Session concluded with an official Group Photo Session.

The participants of the workshop included **26** scientists, experts and professionals from **16** developing countries including Bhutan, Egypt, India, Indonesia, Kenya, Malaysia, Mauritius, Myanmar, Nepal, Pakistan, Republic of Korea, South Africa, Sri Lanka, Turkey, Zimbabwe and the host country, Vietnam.

The **Overseas participants** were from **Bhutan** [**Mr. Karma Wangchuk**, Asst. Chief QC Officer, Menjong Sorig Pharmaceuticals Corporation Limited (MSPCL), Thimphu]; **Egypt** [**Prof. Dr. Mohamed Saleh Hamed Abdelfattah**, Professor (Natural Products & Chemistry) Marine Natural Products Unit, Faculty of Science, Helwan University, Ain Helwan, Cairo]; **India** [**Dr C. Mohandass**, Senior Principal Scientist, Biological Oceanography Division, CSIR-NIO (National Institute of Oceanography), Dona-Paula, Goa; **Mr. Daya N. Mani**, Principal Scientist & Head Herbal Medicinal Product Department & Medical Officer, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow; **Dr. Vartika Mathur**, Assistant Professor, Department of Zoology, Sri Venkateswara College, University of Delhi, South Campus, Dhaula Kuan, New Delhi; and **Ms. Jasmeet Kaur**, Research Associate, NAM S&T Centre, India Habitat Centre, Lodhi Road, New Delhi]; **Indonesia** [**Dr. Agus Trianto**, Head of Marine Science Study Programme, Department of Marine Science, Faculty of Fisheries and Marine Sciences, Diponegoro University, Tembalang, Semarang]; **Kenya** [**Dr. Festus Mururi Tolo**, Chief Research Scientist/Head, Natural Products Research and Drug Development Programme (NAPREDA), Kenya Medical Research Institute, Nairobi]; **Republic of Korea** [**Prof. Dr. Jeong Ah Kim**, Associate Professor/ Department Head of Pharmacy, College of Pharmacy, Kyungpook National University, Daegu and **Dr. Byung-Sun Min**, Dean, College of Pharmacy, Daegu Catholic University, Gyeongsan-si Gyeongbuk]; **Malaysia** [**Dr. Hussin Bin Muhammad**, Head of Unit, Toxicology & Pharmacology Unit, Herbal Medicine Research Centre, Institute for Medical Research, Kuala Lumpur]; **Mauritius** [**Prof. Dr. Fawzi Mahomoodally**, Associate Professor, Department of Health Sciences, Faculty of Sciences, University of Mauritius, La Caverne No1, Vacoas] ; **Myanmar** [**Ms. Gadae Maung Maung**, Principal Scientist, Department of Research and Innovation, Ministry of Education, Yankin Township, Yangon]; **Nepal** [**Dr. Deepa Shree Rawal**, Senior Scientific Officer, Nepal Academy of Science and Technology (NAST), Kathmandu]; **Pakistan** [**Dr. Hammad Saleem**, Lecturer (Pharm. Chemistry), Institute of Pharmaceutical Sciences (IPS), University of Veterinary and Animal sciences (UVAS), Lahore]; **South Africa** [**Prof. Shirley Caroline Keolebogile Motaung**, Assistant Dean, Research, Innovation and Engagement, Faculty of Science, Department of Biomedical Sciences, Tshwane University of Technology, Pretoria]; **Sri Lanka** [**Dr. Mathes Hewage Nimal Karunasiri**, Head (Pharmaceutical Botanic Division) & Senior Ayurvedic Medical Officer, Bandaranayake Memorial Ayurveda Research Institute, Maharagama]; **Turkey** [**Prof. Dr. Alev Onder**, Professor, Faculty of Pharmacy, Ankara University, Ankara]; and **Zimbabwe** [**Mr. Carl Cornelious Mateta**, Senior Medical Research Officer, Head of Section (HIV, Microbiology), National Institute of Health Research, Ministry of Health and Child Care, Causeway, Harare and **Mr. Onias Ndoro**, Director, Department of Traditional Medicine, Ministry of Health & Child Care, Harare]. The NAM S&T Centre was represented during the Workshop by **Prof. Dr. Arun**

P. Kulshreshtha, Director General and **Dr. Amitava Bandopadhyay**, Director General (Designate).

The **Vietnamese participants** included (i) **Mr. Cao Duc Tuan** [Assistant Dean for International Collaboration, Faculty of Pharmacy & Lecturer, Department of Pharmaceutical Chemistry and Quality Control, HPMU, Hai Phong]; (ii) **Dr. Ngo Thi Quynh Mai** [Head, Department of Pharmacognosy, School of Pharmacy, HPMU, Hai Phong]; (iii) **Ms. Nguyen Thi Thuy Dung** [Lecturer, Traditional Faculty in HPMU, Hai Phong]; (iv) **Prof. Dr. Phuong Thien Thuong** [Associate Professor & Head, Department of Herbal Analysis and Standardization, National Institute of Medicinal Materials, Hanoi]; (v) **Mr. Dang Van Diep** [Pharmacist, Department of Pharmacology, Viet Nam Medical Military University (VMMU), Ha Noi City]; and (vi) **Mr. Chu Duc Thanh** [Bio-medicine Pharmacy Applied Research Center, Vietnam Military Medical University, Hanoi].

The overall programme of the Workshop was conducted in *two Plenary Sessions* and *three Technical Sessions*, as below:

Plenary Session-1 was chaired by Prof. Dr. Nguyen Van Hung (Vietnam) and Prof. Dr. Alev Onder (Turkey). The scientific papers presented in this session were '*Polypharmacology of Natural Products Harnessed from Terrestrial and Marine Biodiversity in Mauritius – Current Status and Future Perspectives*' by Prof. Dr. Fawzi Mahomoodally (Mauritius) and '*Ethnobotanical, Phytochemical and Pharmacological Studies on Medicinal Plants in Hoang Lien Mountains, Northern Vietnam*' by Prof. Dr. Phuong Thien Thuong (Vietnam).

Plenary Session-2 was chaired by Prof. Dr. Phuong Thien Thuong (Vietnam) and Prof. Dr. Mohamed Saleh Hamed Abdelfattah (Egypt). The scientific papers presented in this session were '*Exploring the Oceans: Potential, Challenges and Future of Marine Pharmacology*' by Ms. Jasmeet Kaur (India); '*Traditional Medicine in Bhutan*' by Mr. Karma Wangchuk (Bhutan); '*Medicinal and Aromatic Plants (MAPs): Status, Scope and Challenges in Nepal*' by Dr. Deepa Shree Rawal (Nepal); and '*Scope of Herbal Medicine in Sri Lanka*' by Dr. Mathes Hewage Nimal Karunasiri (Sri Lanka).

Technical Session-1 was chaired by Prof. Dr. Nguyen Van Hung (Vietnam) and Prof. Dr. Fawzi Mahomoodally (Mauritius). The scientific papers presented in this session were '*Biological, Chemical and Toxicological Perspectives on Aerial and Roots of *Filago germanica* (L.) Huds: Functional Approaches for Novel Phyto-Pharmaceuticals*' by Dr. Hammad Saleem (Pakistan); '*Constituents from the Buds of *Cleistocalyx operculatus**' by Dr. Ngo Thi Quynh Mai (Vietnam); '*Anti-thrombosis Effect and Repeated Dose 28-day Oral Toxicity of *Panax bipinnatifidus* Seem in Experimental Animal*' by Mr. Dang Van Diep (Vietnam); '*Efficacy of Mosquito Repellent Formulations from Clove, Citronella, Eucalyptus Essential Oils and Neem Oil*' by Ms. Gadae Maung Maung (Myanmar); '*Comparative Pharmacokinetics of Phyllanthin in *Phyllanthus amarus* Extract and Phospholipid Complex of *Phyllanthus amarus* Extract after Oral Administration in Mouse using a LC-MS/MS Method*' by Mr. Chu Duc Thanh (Vietnam); '*The Effect of *Ficus deltoidea* Aqueous Extract on Prenatal Development in Rats: Preliminary Study*' by Dr. Hussin Bin Muhammad (Malaysia); and '*The Antiprotozoal Activity of Some Essential Oil Extracts Against *Plasmodium**' by Mr. Onias Ngoro (Zimbabwe).

Technical Session-2 was chaired by Dr. C. Mohandass (India) and Dr. Hussin Bin Muhammad (Malaysia). The scientific papers presented in this session were '*Difficulties and Expectations in Working with Liverworts*' by Prof. Dr. Alev Onder, (Turkey); '*The Potential of Medicinal Plants*

in the Development of Tissue Engineering Products’ by Prof. Shirley Caroline Keolebogile Motaung (South Africa); *‘Evaluating the Antimicrobial Properties of Elephantorhiza elephantina (Muzezapasi) in the Treatment of Gastroenteritis’* by Mr. Carl Cornelious Mateta (Zimbabwe); *‘Medicinal Plant Endophytes: A Search for Lung Cancer Drug’* by Dr. Vartika Mathur, (India); *‘Evaluating the Effect of BsQ Cream on the Treatment of Soft Tissue Injury’* by Ms. Nguyen Thi Thuy Dung (Vietnam); *‘Scientific Validation of Anti-Allergic Property Euphorbia thymifolia – Traditional Knowledge of Ayurveda Leading Towards An Effective Modern Therapy’* by Mr. Daya N. Mani, (India); and *‘Herbal Medicine in Management of Non-Communicable Diseases: A Case of Two Medicinal Plants Under Evaluation for Bronchial Asthma in Kenya’* by Dr. Festus M. Tolo, (Kenya).

Technical Session-3 was chaired by Prof. Dr. Pham Van Thuc (Vietnam) and Prof. Shirley Caroline Keolebogile Motaung (South Africa). The scientific papers presented in this session were *‘Marine Microbes and their Potential for Health Care Products’* by Dr. C. Mohandass, (India); *‘Bioactive Natural Products from the Red Sea Microorganisms’* by Prof. Dr. Mohamed Saleh Hamed Abdelfattah, (Egypt); *‘Antimicrobial Potential of Vietnam Marine-derived Actinomycetes’* by Mr. Cao Duc Tuan (Vietnam); and *‘Exploration of Bioactive Compounds from Coral Reef System’* by Dr. Agus Trianto, (Indonesia).

The Concluding Session was chaired by Prof. Dr. Nguyen Van Hung, Acting-President, HPMU and Prof. Dr. Arun P. Kulshreshtha, Director General, NAM S&T Centre and co-chaired by Mr. Cao Duc Tuan, HPMU and Dr. Vartika Mathur, India. Extensive discussions were held during this session on the draft Hai Phong Resolution on ‘Drugs Development from Herbs and Marine Medicinal Materials’ after which the Resolution was unanimously adopted by the participants for its submission to the concerned ministries, agencies and other authorities in their countries. The Certificates of Participation were then handed over to the participants for the successful completion of the Workshop.

To discover the untouched nature of Vietnam, a visit to ‘Cat Ba National Park’ and ‘Cat Ba Archipelago’ was arranged for the foreign participants on the last day of the Workshop.

The participants expressed their gratitude to the organisers and hosts, NAM S&T Centre and HPMU for the excellent arrangements and efficient coordination of the Workshop. They also appreciated that such scientific event not only provided opportunities to them to meet, engage, gain and share knowledge at a common platform, but also facilitate in fabricating optimistic future prospects for new drug developments from natural resources.