CHEMRAWN helps establish an International Centre for Natural Product Research

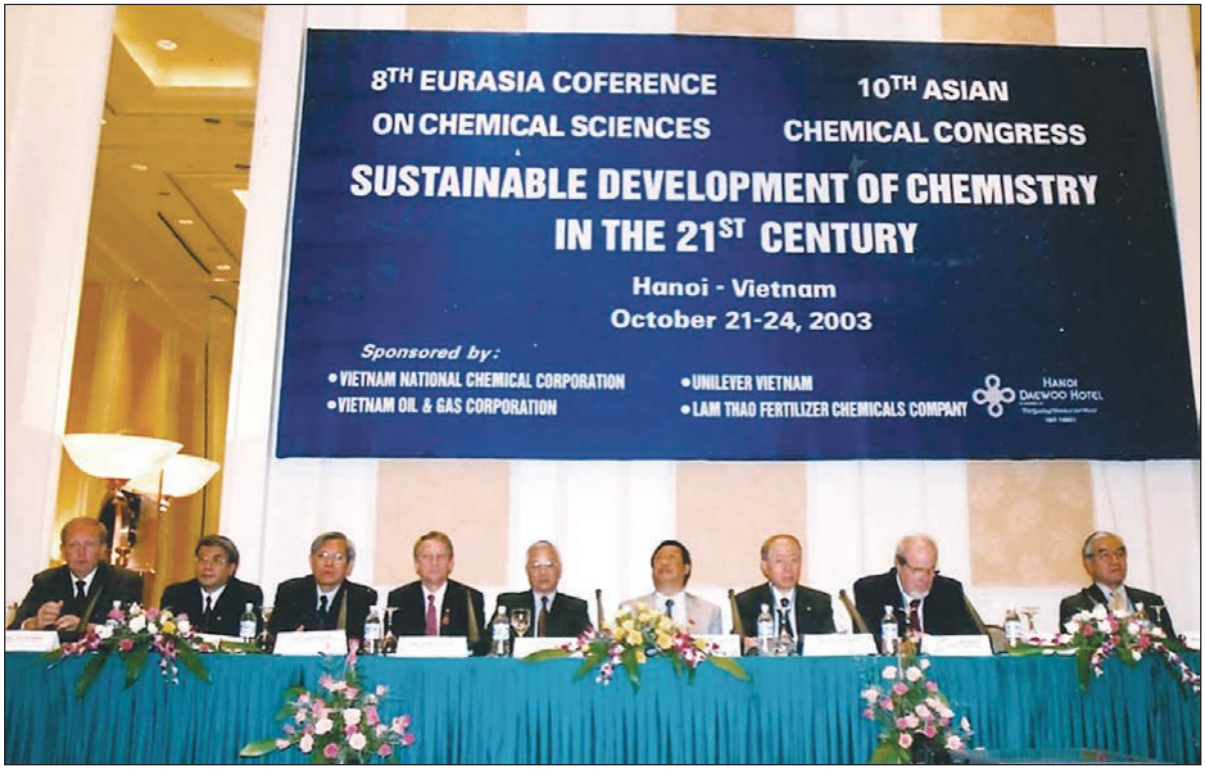
by Leiv K. Sydnes

After a long-lasting and demanding effort, a dream has come true: plans to establish the International Centre for Natural Product Research (ICNPR) in Dhaka, Bangladesh are becoming a reality. At the end of November 2017, the Islamic Development Bank approved a significant loan that made it possible to achieve an ambitious idea. The centre will be built at, and become an integrated part of, Bangladesh University of Health Sciences in Dhaka. This odyssey would never have become a success if it had not been for Professor Mohammad Mosihuzzaman, who worked relentlessly to build international support for the idea through IUPAC projects and CHEMRAWN XX.

Background

The dream was born when Professor Mosihuzzaman realized that, although "Health for all" is a vision which everybody strives for, it will remain inaccessible to a majority of the human population for the foreseeable future. This has generated a need for scientific investigations of other forms of knowledge to develop healthcare products. Traditional medicine practices, largely herbal in nature, are now regarded as important tools against a number of diseases. The World Health Organization (WHO) recognized this fact in the early 1970s and encouraged governments to utilize local knowledge of herbal medicines to prevent diseases and promote healthcare.

However, traditional medicines suffer from a range of shortcomings. These include insufficient evidence regarding safety, efficacy, and standardization; inconsistent production practices; and potential interactions with allopathic medicines. Furthermore, herbal medicinal products are largely unregulated: contamination from heavy metals, pesticides, microbes and insects is a safety issue, and adulteration with synthetic chemicals is an important challenge. Therefore, traditional medicines must be produced in



From the opening of the joint FACS and Eurasia meeting in Hanoi in October 2003. To the far right, Professor Hitoshi Ohtaki, Japan, is recognized; to the left, then-IUPAC President Professor Leiv K. Sydnes, Norway.

From the opening of the IUPAC-sponsored conference on Biodiversity and Natural Products: Chemistry and Medical Applications, held in Delhi, India in January 2004 as a joint ICOB and ISCNP meeting.

accordance with stringent protocols if their use is going to increase.

With this conclusion as a basis, Professor Mosihuzzaman argued relentlessly for a more transparent and far-reaching 'scientification' of traditional medicine. The manufacture of herbal medicines needs to be governed by a similar assessment of safety, quality, and efficacy as those required for pharmaceutical products. A first step in this direction was the inclusion of Traditional Medicine among the scientific topics of the Tenth Asian Symposium on Medicinal Plants, Spices, and Other Natural Products, held in November 2000 in Dhaka, Bangladesh. A good number of traditional medical practitioners participated in the conference, where aspects of the safety, efficacy, and standardization of herbal medicines were thoroughly discussed in an open forum. Gradually, the idea developed to establish a multidisciplinary research centre for natural product chemistry and biology, where these issues could be investigated. This idea was incorporated in the Dhaka Declaration adopted by the Asian Coordinating Group in Chemistry at a meeting shortly after.

The proposal to establish a natural-product research centre was further discussed at the FACS (Federation of Asian Chemical Societies) meeting in Hanoi, Vietnam and in the ASOMPS XI meeting in Kunming, China, in October 2003. A draft proposal presented at these meetings was well received, and the idea gained momentum.

IUPAC projects

At this point in time, IUPAC entered the scene, because Professor Mosihuzzaman felt that the emerging plans needed to be exposed to an even wider international scientific community. The occasion was the IUPAC-sponsored conference on Biodiversity and Natural Products: Chemistry and Medical Application, which was held in Delhi, India in January 2004. During that conference, a more complete draft of the plans was presented at a workshop supported by IUPAC. As IUPAC President at that time, I presided over the workshop proceedings—indeed, this was my first official task as President. Thirty-eight scientists from 18 countries attended the workshop. It was generally agreed that an International Centre for Natural Products Research (ICNPR) should be established, preferably in Bangladesh. A Task Group of scientists from different continents was formed to prepare a proposal to establish the ICNPR, and IUPAC was again involved when the plans were finalized at a meeting in June the same year.

During the next couple of years Professor Mosihuzzaman actively promoted the plans at international conferences. An outcome of this activity was a project proposal entitled, "Development of methodologies and protocols for documentation, evaluation of safety & efficacy and standardization of herbal medicine", which was sent to IUPAC with a funding request. At its meeting during the IUPAC General Assembly in Beijing, China in August 2005, the Organic and Biomolecular Chemistry Division (Division III) funded the project essentially as requested. The work was very competently carried out as proposed by a team of renowned scientists led by Professors M. Mosihuzzaman and M. Iqbal Choudhary (from H. E. J. Research Institute of Chemistry, Karachi, Pakistan). A tangible output was the IUPAC Technical Report, "Protocols on Safety, Efficacy, Documentation and Standardization of Herbal Medicine", published in *Pure and Applied Chemistry* in 2008 (*Pure Appl. Chem.* **80**:2195-2230 (2008)).

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The publication of this report in *Pure and Applied Chemistry* became, in several ways, a turning point. The report essentially defines a new coordinate system for herbal medicines and calls for a stronger scientific basis for this discipline. This is where IUPAC's interest is the strongest, because chemistry is the fundamental science for assuring reliable clinical outcomes for these plant-based products. This has been recognized by the World Health organization, which in both 2001 and 2011 called for an evidence-based approach to, and a strategic plan for, a comprehensive enhancement of traditional medicine.

Inspired by all this, Professor Mosihuzzaman worked persistently to develop a programme for a CHEMRAWN conference on herbal medicine. He presented his plans for the CHEMRAWN committee at the IUPAC General Assembly in Puerto Rico, July 2011. After a good and fruitful discussion, the drafted plans got the go-ahead and he was picked to chair the international Task Group appointed to plan the conference. At the next IUPAC General Assembly, in Istanbul, Turkey in 2013, the CHEMRAWN Committee approved the concrete proposal for such a conference, adopted, "Herbal Medicine for Health Care in the 21st Century" as its title, gave it the CHEMRAWN number XX, and decided to pick Dhaka, Bangladesh, as the venue.

Professor Mohammad Mosihuzzaman, now Honorary Director of Bangladesh University of Health Sciences (BUHS) in Dhaka, Bangladesh, has been the most instrumental person in the planning of ICNPR for many, many years.

The ICNPR Mission Statement:

The Centre will provide scientific and technical support to the local natural products industry, traditional practitioners and patients by generating scientific data and human resources necessary for development. It will also endeavor to document traditional herbal knowledge, protect intellectual property rights and conserve natural resources in Bangladesh.

The conference was planned to be held in November 2014, but due to difficulties in raising enough support for the conference, always a challenge for CHEMRAWN conferences, the meeting was eventually postponed until 6-9 November 2015. A thorough report of the meeting has appeared in this publication (*Chem. Int.*, 38 (3-4), pp. 41-42 (2016)), where it was mentioned that the conference generated a lot of support for the idea of establishing an *International Centre for Natural Product Research* (ICNPR) in Bangladesh. This solidified the initiative that had been taken with the Bangladesh government in this regard and which brought the Islamic Development Bank in the country onto the stage. It is this bank that decided on 12 November 2017 to approve the loan needed to establish ICNPR (see Mission in the box above) and turn the institute idea into a reality.

Many more than I can name deserve words of thanks on this occasion, but above all is Professor Muhamad Mosihuzzaman. For more than 20 years, he has worked hard to achieve this goal. But then, he has a virtue worth mentioning: he is a living example of how to use IUPAC, and particularly CHEMRAWN, to prove with international authority that plans fulfil scientific requirements and are up to the standards set by the profession. As a past chair of CHEMRAWN, it gives me great satisfaction to see that the CHEMRAWN process has helped improve the quality of these plans and make ICNPR a reality, not only in its own right, but also as a visible testament to the value of CHEMRAWN itself.

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