

African Perspectives
Report from Fez, Morocco PAEMS

2005

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Abstract

The 5th PAEMS International Conference was held in Fes (Morocco) under the high auspice of his majesty king Mohamed VI and in collaboration with the university sidi Mohamed Ben Abdellah.

The Topic was « *Environmental Mutagens and Carcinogens: Genomics and Proteomics Era* ». The objectives of this 5th meeting were to explore the new tools for tracking mutagen and the environmental carcinogens and at the same time consolidate the African network, set up since 1983, by proposing and setting up common Pan African projects. In order to achieve these goals, many eminent national and international experts were invited from Egypt, Italy, South Africa, USA, Cameroon, India, Zimbabwe, Morocco and Nigeria..... This meeting was also an opportunity to shed some light on three main topics: the first one was related to the environment and health as well as the relative repercussions, the second focused on prevention, evaluation of risks and treatment, and the third topic was related to discussions around diverse possibilities of African collaborations based on the specificities and complementarities in the African continent.

Introduction

EMS

A major mission for organizing the series of International Conferences on Environmental Mutagens in Human Populations is to bring science and scientists to the sites where the field of environmental health is in developmental stages and environmental health is a serious concern. The mission has been fulfilled in each of the previous conferences that were held in Egypt, Czech Republic, Thailand and Brazil. These conferences have led to significant enhancement of regional scientific expertise from the acquisition of scientific knowledge and from the generation of sustainable collaborative programs.

PAEMS

The field of environmental mutagenesis has been gaining increasing international recognition for many years. The well-recognized pioneers who had promoted this field, particularly at the international level, are the late Dr. Alexander Hollaender and the late Dr. Frits Sobels. Through their independent, yet complementary efforts, they had organized workshops in countries where the field of environmental mutagenesis were non-existence. From these activities, many scientists in these countries had received education and training to initiate their careers and scientific societies that were committed to the field of environmental mutagenesis. With dedicated effort from many scientists, the initiatives from the late Hollaender and the late Sobels continued to flourish and became sustainable programs. Many of these programs are subsequently promoted by the EMS-Hollaender Fund for International Programs of the Environmental Mutagen Society and the International Association for Environmental Mutagen Societies. One sustainable program is the series of conferences known as the International Conferences on Environmental Mutagens in Human Populations.

The idea of the PAEMS was the fruit of a collaborative work between Dr. Wagida Anwar from Egypt and William Au from USA. They decided to organize a series of conferences that would be held in countries where the field of environmental mutagenesis is still in its developmental stages and where local and regional environmental health is of major concern. The overall objectives were to enhance the awareness of and to identify solutions to human environmental health problems, to facilitate interactions and to foster international collaborations. Au and Anwar planned to have the first conference in Cairo, Egypt, the hometown of Wagida Anwar.

The enormous interest generated from the conference led to the development of many high profile and sustainable programs. The most visible of all is that the conference sparked the organization of the Pan African Environmental Mutagen Society (PAEMS). Ever since, the society has organized a scientific conference throughout Africa approximately once every 3 years: Cairo, Egypt, 1993; Cape Town, South Africa, 1996; Harare, Zimbabwe, 1999; Cairo, Egypt, 2003.

5th PAEMS International Congress

Since the 4th PAEMS International Congress held in Cairo under the Topic “An African Agenda for Prevention Research,” many African collaborations and partnerships were born leading to many conferences in the field of health and biology and the establishment of a number of collaborative projects like the Initiative for the Development of Indigenous Food-plants of Africa” IDIFA. All these achievements are consistent with the goals of the PAEMS mainly spreading the new information and technology related to Environmental Mutagenesis and encouraging cooperation and training programs between different African countries but also with the rest of the world.

To further boost the development of these research axes, we are pleased to accommodate you, today, in Fes, for the 5th PAEMS International Conference where the main topic will be:

« *Environmental Mutagens And Carcinogens: Genomics And Proteomics Era* »

Mutagen and the environmental carcinogens could be biological or chemical agents. The known human carcinogenic chemicals are varied both in structure and origin, and they can result from either industrial or natural products. Among the environmental factors, some food component could be major carcinogenic factors, even if this role is not as well established for other environmental carcinogens. Food brings to an organism a multitude of macro and micronutrients that have various effects on promoting cancer. The development of new technologies of molecular detection will make it possible to better investigate these new research fields.

Population health depends also upon a good quality of the environment including air, water, soil and food. Unfortunately, many of the problems are caused by the fact that these environmental spaces are polluted creating a situation that can no more be accepted. Indeed, the world cannot tolerate that over a billion children are malnourished and still live in poverty, and more than ten million children under the age of five years still die every year of diarrhoea, pneumonia, measles, malaria and AIDS (41% of them take place in Sub-Saharan Africa). These pathologies are in part a consequence of a polluted environment and a bad management of the natural resources, and many of these fatalities could be prevented.

The objectives of this 5th PAEMS were to explore the new tools for tracking mutagen and the environmental carcinogens and at the same time to consolidate the African network, set up since 1983, by the proposed common Pan-African projects. In order to achieve these goals, we invited renowned national and international experts. We tried to shed the light on three main topics: the first related to the environment and health as well as the relative repercussions, the second focused on the prevention, the risk evaluation and treatment, and the third topic related to discussion about the possibilities of African collaborations based on the specificities of our continent.

In addition, an Alexander Hollaender Course on Genetic Toxicology was conducted on the day after the conference to reinforce the aims of the PAEMS to promote technology transfer to African students in the field of Environmental Molecular Biology. In parallel to these scientific parts, a social program was set up to contribute to make the PAEMS 2005 a very convivial and cordial gathering.

A summary and perspective on the conclusions that emerged from the meeting are given below. These include especially some critical problems encountered in research in developing countries.

General Scientific Issues Raised During the Meeting

Many conclusions emerged from the meeting and specially concerning some critical problems encountered in Africa and developing countries. These recommendations most likely will be very helpful to establish a new vision of environmental research in these countries.

- (a) Using molecular epidemiology techniques to evaluate air mutagenicity in Africa and examine health impact and repercussions of its pollution.
- (b) Considering toxicants exposure as a determinant factor in HIV infection and its propagation in Africa.
- (c) Considering aflatoxin exposure as an immunity and nutritional risk as important as the cancer risk.
- (d) Using the relationship between chemical structure and chemical activity as a bioinformatics tool for risk assessment.
- (e) Encouraging the identification of key active components of complex mixtures by using bioassay-directed chemical fractionation of complex mixtures obtained from natural products and the environment (air, water, food, soil, etc.).
- (f) Considering curcumin and chlorophyllin as protective against DNA mutations induced by certain classes of mutagens.

(g) Considering genetic polymorphism tests in Africa as a potentially useful diagnostic before certain drug treatments.

(h) Considering nutrition in general as an important factor in environmental carcinogenesis.

(i) Using the Buea model (Presented by Dr Ndip from Cameroon), using this oil degrading bacteria as a system for oil spill cleaning campaigns in Africa.

(j) Proposition of the GMOs seeds and particularly the maize hybrids as a safe and healthy nutritional alternative protecting against the risk of exposure to mutagenic and infested crops products.

(k) Encouraging investigation of some beneficial effects of traditional medicinal plants as credible alternatives or supplements to routinely used drugs for cancer and AIDS treatments.

The recommendations included :

- 1- Organizing effective scientific activities in the years between PAEMS conferences.
- 2- Encouraging the establishment of the Local Environmental Mutagen Societies (recommendation by Prof. Ndip from Cameroon).
- 3- Establishment of Website for the society and to link it to that of the IAEMS
- 4- Continuation of the publication of the PAEMS Newsletter. The next volume will be prepared by Prof. Fatima Zahra and will include the report of the 5th Conference.
- 5- Seeking the continued support of the IAEMS to the PAEMS (Dr. David De Marini, President of IAEMS and Prof. Wagida Anwar, Secretary General of IAEMS).
- 6- Encouragement of payment of the membership fees.
- 7- Next meeting will be held Cape Town, South Africa in March 2008.
- 8- Names of the International Advisory Board: Dr. David De Marini, Dr. William Au, Prof. Walter Marasas, Dr. Ray Tice, Prof. Chris Wild, Dr. Harri Vainio, Dr. Jonathan Williams, Dr. Chris Schownwalder, Dr. Michael Waters.

Course in Genetic Toxicology

At the conclusion of the 5th PAEMS meeting, the Alexander Hollaender Genetic Toxicology Course was conducted, which helped to promote technology transfer to African students. This course was organized by Drs W. Au, A. Elhajouji, and D. DeMarini and lasted one day, during which many toxicological techniques were explained and demonstrated to more than 50 students.

A selection committee was formed to evaluate the scientific presentations from young scientists, 3 awards were offered by Dr A. Elhajouji from Novartis Pharma AG, the second from PAEMS, and the third, from Pr J. Williams from the University of Georgia, USA. These awards were received by Dr. K. Gouib, Dr. and Dr. F-Z Azzaoui from Morocco.

Identification of research areas priority: IDIFA as an example

Organisational Propositions

- (a) Creating a think tank to address the issues legislative issues associated with GMOs and environmental pollution in Africa.
- (b) Establishing a “transfer technology committee” to encourage and invite all the expatriate African scientists to help members of the Pan-African Environmental Mutagen Society with their research efforts.
- (c) Proposing the IDIFA as a model for Pan-African collaboration and scientific integration.
- (d) Introducing environmental ethics into African educational curricula.
- (e) Organizing environmental awareness campaigns in cities and rural areas, especially of environmental mutagens/carcinogens.
- (f) Tackling environment problems as a global issue and proposing local solutions to environmental problems that balance sustainable development with good environmental practices.

Perspectives: Moroccan Organization

The ICEMHP Conferences can be considered a unique and valuable international scientific outreach program. It is not an exaggeration to state that the ICEMHP Conferences provide outstanding value to many scientists that would not otherwise have the opportunity to attend world-class scientific conferences. All participants gain academic knowledge and social connections that are useful for improving their scientific careers and research efforts. Future success of this series of conferences rests on the continued support from dedicated scientists and sponsors and the involvement of scientists and local organizers.

Acknowledgements

The success of this series of international conferences could not have been possible and sustainable without the dedicated support of many individuals and sponsors. Their valuable contributions to each of the conferences are listed in the specific conference monographs.

On behalf of the organizing committee, it is our privilege to welcome you in Fès to participate in the Fifth International Meeting of the Pan African Environmental Mutagen Society “PAEMS 2005.” We hope that beyond the scientific meeting, bonds of friendship will be weaved between all the participant countries: Egypt, South Africa, Cameroon, Italy, Nigeria, Zimbabwe, India, Greece, Belgium, England, Poland, United State of America, and Morocco.

The organizing Committee kindly acknowledges our partners in organizing the meeting: The University Sidi Mohammed Ben Abdellah, The region of Fes-Boulemane, Novartis Pharma AG Switzerland, the Moroccan National Research Center, the Popular Bank for Education and Culture, the NIEHS-USA, the EMS-USA, the Fes Faculty of Sciences, and the Fes Faculty of Medicine.

Announcement

In parallel to these scientific events, the PAEMS held its general assembly, and a new board was elected. All the attendants approved that the 6th PAEMS International Conference be held in Cape Town, South Africa in the spring of 2008 and will be organized by Dr. Hester Vismer, Medical Research Council. Accordingly Dr. Vismer became the President-Elect of the Society.

The newly elected Council Members include the following 7 persons:

- 1- The President, Prof. Fatima-Zahra Squali, Morocco, who organized the 5th conference.
- 2- The President-Elect, Dr. Hester Vismer, South Africa, who will organize the next conference.
- 3- The Former President, Prof. Wagida Anwar, Egypt, who organized the 4th conference.
- 4- First Vice-President, Prof. A. Alaoui, who took major part in organization of the 5th conference.
- 5- Second Vice-President, Prof. Roland N. Ndip, Cameroon, who is willing to share in organization of future conferences.
- 6- Secretary General, Dr. Gelderblom, South Africa, from the same Institution that will be organizing the next conference.
- 7- Treasurer, Dr. Shephard, South Africa, from the same Institution that will be organizing the next conference.

There was an agreement about the revised draft Constitution of PAEMS. The major changes in the constitution are the movement of the location of the PAEMS Office to the Institution organizing the next conference.

The Pan African Environmental Muatgen Society (PAEMS) is planning to organize the next scientific meeting in South Africa in the fall of 2007. Thus, the office will be moved there and will be under the direction of Dr. Hester Vismer.