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21676

ICS Publication 012/95
December 1995

*International Centre for Science
and High Technology*

**University of Indonesia
Department of Chemistry**



XD9700116

Report on the
Expert Group Meeting on
Industrial Exploitation of Indigenous
Medicinal Plants

Jakarta, Indonesia
19 -22 December 1995





*International Centre for Science
and High Technology*

**University of Indonesia
Department of Chemistry**

Report on the
Expert Group Meeting on
Industrial Exploitation of Indigenous
Medicinal Plants

Jakarta, Indonesia
19 -22 December 1995



Title: Expert Group meeting on Industrial Exploitation of Indigenous Medicinal Plants

Dates: 19-22 December 1996

Venue: Jakarta, Indonesia

Organizers/Directors: Mr. Soleh Kosela, Department of Chemistry, University of Indonesia, Jakarta, Indonesia.

Prof. Enrico Feoli, ICS-UNIDO, Trieste, Italy.
Prof. Mauro Graziani, ICS-UNIDO, Trieste, Italy.

PURPOSE

The meeting was organized with the aim to promote exchange of experiences in industrial exploitation of indigenous medicinal plants by fostering research collaboration and technological transfer between groups and areas.

The Aide-Mémoire of the meeting is included in Annex I.

TOPICS AND PROGRAMME

A welcome address to the participants was given by Prof. Soleh Kosela as local organizer, Prof. Tuley de Silva as representative of UNIDO, Prof. Umar Mansyur, Vice-Rector of the University of Indonesia and Prof. Ugo Leone, ICS Project Leader, who outlined the aims of ICS and gave general information on the relevance of the topic of the EGM.

After that, Prof. Feoli illustrated the programme of the EGM and stressed the importance of this initiative within the activities related to industrial development of rural areas.

The meeting continued with the presentation of Dr. de Silva concerning UNIDO's Developmental Activities on the Utilization of Medicinal Plants.

After a deep discussion on several topics and especially on the need to create a network of institutions in the South Asian region for promoting the industrial development of indigenous medicinal plants, the EGM started with the presentation of country papers dealing with the state of the art in the related countries on:

- Ethnobotany and Agronomy/Propagation of Medicinal Plants
- R & D on Medicinal Plant Products and their Products
- Activity/Toxicity Studies
- Processing of Medicinal Plants
- Standardization of Quality Control of Medicinal Plant Products

- Commercialization /Marketing of Medicinal Plant-based Products.

For the details concerning the programme see Annex II.

Two visits were organized to Jamu Factory and to the Botanical Gardens of Bogor as a complement of the event.

PARTICIPANTS

Thirteen experts coming from South East Asian countries plus twenty nine from Indonesia attended the meeting.

The final list of participants is enclosed (See Annex III).

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Uncontrolled collection of valuable plants can lead to biodiversity conservation problems even leading to the extinction of some species. Hence conservation policies, and practices should be adopted as indicated at the UNCED and Agenda 21. As a first step for the conservation of medicinal and aromatic plants, economic mapping of these plants in each country has to be carried out so that a composite picture of the availability of these plants for industrial use as well as plants needing conservation could be identified. For this reason the following recommendations have been given.

Recommendations

Recommendations have been suggested at four different levels:

At national level

- Countries should develop appropriate regulatory and registration procedures for traditional medicines in order to assure the quality and safety of marketed traditional drugs. Countries that do not have formularies and pharmacopoeia of traditional medicines should prepare these.
- National R & D centres should be set up or strengthened to conduct research on various aspects of cultivation and industrial processing of medicinal and aromatic plants in an active and targeted manner.
- Facilities for pharmacological and toxicological studies should be considerably strengthened not only to evaluate the traditional medicines but also to develop new drugs.
- Facilities for processing selected medicinal and aromatic plants should be introduced in rural areas where feasible, in order to encourage systematic

activation to reduce damage to biodiversity and to retain more income at the rural level. This will also lead to rural industrial development. Guidance and training for such projects should be promoted through existing R & D institutions.

- Interaction between Universities and R & D institutes and the industry should be improved or initiated. Initiatives should be taken by the Universities and R&D institutes in organizing seminars, workshops, consultations, etc. in order to establish links with the industry.
- Industries in developed countries should be encouraged to undertake joint ventures with partners from developing countries. Governments of developing countries should consider to give incentives for such activities. The Investment Promotion Unit of UNIDO should assist in establishing joint venture projects.

At regional level

- The compilation of a directory of scientific and industrial expertise in different areas of industrial utilization of medicinal and aromatic plants in the region should be a priority.
- Information on processing, quality assurance and clinical uses of plants common to some countries in the region should be collected and a systematic evaluation should be carried out to establish the efficacy of these plants as traditional medicines.
- Quality of traditional herbal drugs should be improved by introducing efficient technologies, good manufacturing practices and proper standardization procedures for raw materials as well as finished products. In some cases controlled clinical studies may be needed for selected remedies to demonstrate their safety and efficiency.
- Technical corporation on industrial utilization of medicinal and aromatic plants among developing countries in the region should be improved and the corporation with developed countries should be strengthened.
- A Regional Information Centre and a data base should be established with ICS/UNIDO assistance in order to provide the urgently needed information on various aspects of industrial utilization of medicinal and aromatic plants such as industrial processes, analysis, formulation technology, drug development, patenting, marketing, regulatory requirements for trading, etc. Strengthening and expanding the activities of an existing data base and an information centre is recommended.

At international institutional level

- Development agencies and international organizations should enhance the development of industrial utilization of medicinal and aromatic plants by providing technical assistance in agro and process technologies, quality assurance, R & D, conservation of plant resources, training of scientific personnel, marketing and investment promotion especially through joint ventures.
- The World Health Organization (WHO), that has developed guidelines for clinical trials for new drugs should promote the diffusion of clinically tested medicines.
- There is a dearth of trained scientific and technical man power in many developing countries in the region. International organizations and UN agencies should assist in training scientists in the areas of selective breeding, agro-technology, post harvest technology, process technology, quality assurance, marketing and economic mapping of medicinal and aromatic plants.
- The present Asian Network on of Medicinal and Aromatic Plants of FAO (ANMAP) should be expanded to include down stream industrial activities and marketing and be continued as an agronomic and industrial network on Medicinal and Aromatic plants. The bulletin (BANMAP) and the newsletter (NANMAP) should also be expanded to cover the activities of the newly formed network.
- International organizations and agencies should assist developing countries in developing guidelines on patenting and intellectual property rights with respect to the exploitation of medicinal and aromatic plants.

Specific actions to be carried out by ICS-UNIDO

- ICS should help in establishing an Advisory Coordinating Group consisting of representatives of FAO, UNIDO, ESCAP, WHO and other relevant agencies should be set up to draw up and implement common programmes for the development of industrial utilization of medicinal and aromatic plants.
- A UNIDO-ICS Regional R & D centre should be established to spearhead developmental activities in different areas of industrial utilization of medicinal and aromatic plants. It is recommended that a suitable existing centre be strengthened or upgraded as the regional centre.
- UNIDO-ICS and FAO should conduct joint symposia on a regular basis to update the know how of scientific and technical personnel of the countries in the region. It is recommended that the symposium be named "Asian

Symposium on the Industrial Utilization of Medicinal and Aromatic Plants" (ASIUMAP) and the first be held in 1996 in China.

- It is recommended that ICS-UNIDO should consider to provide assistance in the training of personnel in specific areas of industrial utilization of medicinal plants.
A group training course should be initiated as a regular activity to train the human resources required by the developing countries for the industrial production of medicinal and aromatic plant products. It is recommended that the first course should be on systematic cultivation and post harvest technology.
- ICS-UNIDO should continue to play the useful and important role of initiating industrial activities on medicinal and aromatic plants by introducing the polyvalent pilot plant and technology to countries which do not possess such facilities. Local fabrication of such pilot plants should be encouraged where ever possible.

FUNDING

The total budget of the EGM amounted to a total of U\$S 29,240.50 as of the enclosed financial statement (See Annex IV).

AIDE MEMOIRE

BACKGROUND AND JUSTIFICATION

The plant kingdom is endowed with a tremendously versatile biosynthetic capacity, and from the beginning of history it has been a major source of medicines. Many plant extracts, in fact, have found a place both in official medicines as well as in "alternative" medicines on the basis of claims that they can arrest or reverse symptoms of human diseases.

Asia is well known world region where medicines based on natural products are still of great importance and are still under development. For this reason it has been programmed to hold a Workshop in that region, drawing on research results from both developed and developing countries.

Over past thousands years, people lived in different countries and areas accumulated a wealth of experience utilizing medicinal plants to prevent from and cure diseases as well as in recovery and health care. In the long history, fairly comprehensive pharmaceutical theories have been evolved as knowledge systems. The interest for these traditional knowledge has increased also in industrialized countries. For this reason, the market demand of phytopharmaceutical drugs has been increasing in the last decades, especially in South East Asia.

ICS-UNIDO identifies in this objective dynamics concrete opportunities for the industrial exploitation of indigenous medicinal plants as an important component of specific and general industrial development of rural areas.

OBJECTIVES AND EXPECTED OUTPUTS

The aim of this meeting is to promote exchange of experiences in industrial exploitation of indigenous medicinal plants by fostering research collaboration and technological transfer between groups and areas.

The output of the meeting will be the collection of presentations and discussions made by the participants. This will constitute the basis for future cooperation among the participants in order to develop a network useful to coordinate research and training activities for industrial exploitation of indigenous medicinal plants.

The output will be also the basis for improving the interrelationship between the already existing data base of plants and phytochemical products.

An additional important output of the meeting will be also a set of guidelines for establishing a plan of action of future activities to be organized jointly by UNIDO and ICS.

PROGRAMME AND STRUCTURE OF THE EGM

Participants expected: about 20 participants coming from South East Asian developing countries, plus 10 participants coming from developed countries (at own costs).

The EGM will consist of presentations by the participants on different fields of expertise within the subject of the meeting.

The participants will exchange experiences and propose activities and strategies in order to integrate:

- 1) Ethnobotany and agronomy.
- 2) Chemistry (R & D) and analytical techniques.
- 3) Processing and industrial production.
- 4) Commercialization.

The programme will include discussions also on:

- 1) Components analysis and pharmacology of medicinal plants.
- 2) Means of industrial exploitation of medicinal plants.
- 3) Breeding, improvement and conservation of medicinal plants.

The EGM will be devoted to the the description and discussion of the latest technologies implicated in the industrial exploitation of indigenous medicinal plants. (For details see Annex 1).

DOCUMENTATION

The documents available for the meeting will be:

- 1) Aide-mémoire of the EGM.
- 2) EGM programme and list of participants.
- 3) Country papers prepared by the participants which will be discussed during the meeting.

PARTICIPATION

The meeting will bring together for the period of one week experts, industrialists and pharmaceutical companies. Thirty participants are envisaged but strong attendance from the private sector is expected. Participation is by invitation. Participants are asked to prepare in advance a short report on the situation of the relative national industry in their home country which can be presented during the meeting.

LANGUAGE

The EGM will be conducted in English and no translation facilities will be available.

IMPACT EVALUATION

Post-meeting evaluation activities shall include:

- follow up on benefits drawn from the meeting by each individual;
- evaluation of utility and impact of the EGM;
- gathering of participant's view on how to further improve similar events.

TIME AND VENUE

The meeting will be held at the University of Indonesia, Kampus Depok, Jawa Barat, Jakarta, from 19 to 22 December 1995.

FINANCIAL ADMINISTRATIVE ARRANGEMENTS FOR UNIDO-ICS FINANCED PARTICIPANTS

For those who will be invited by UNIDO-ICS to participate in the EGM, round-trip air-economy transportation from the airport of departure will be arranged and prepaid tickets issued where necessary.

Room and board at the meeting venue plus a daily allowance will be provided upon arrival to Jakarta. Reservation will be made for all participants at the University Campus.

The participants will be required to bear the following costs:

All expenses in their home country incidental to travel abroad, including expenditures for passport, visa, and any other miscellaneous items as well as internal travel to and from the international airport of departure in their home country. UNIDO-ICS will not assume responsibility for any of the following costs which may be incurred by the participant while attending the meeting:

- (1) compensation for salary or related allowances during the period of the workshop;
- (2) any costs incurred with respect to insurance, medical bills and hospitalization fees;
- (3) compensation in the event of death, disability or illness;
- (4) loss or damage to personal property of participants while attending the workshop.

VISA ARRANGEMENTS

Participants are requested to arrange for their visa as early as possible at the Indonesian Embassy in their home country. In case of difficulties, please advise the contact person mentioned below.

CONTACT PERSON

For additional information, please contact Dr. Soleh Kosela. Further details about the EGM and travel instructions will be provided upon request.

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PROGRAMME

Monday, 18 December 1995

Arrival of the participants

Tuesday, 19 December 1995

09:30 - 10:30

Inaugural session

Welcoming addresses by:

- Prof. Soleh Kosela (organizing committee)
- Prof. Tuley de Silva (UNIDO)
- Prof. Ugo Leone (ICS Project Leader)
- Prof. Umar Mansyur (Vice-Rector, University of Indonesia)

10:30 - 11:00

Coffee break

11:00 - 11:15

Objectives of the EGM-ICS - Prof. E. Feoli (ICS-UNIDO)

11:15 - 12:15

UNIDO's Developmental Activities on the Utilization of Medicinal Plants - Prof. T. de Silva (UNIDO)

12:15 - 12:30

Discussion

12:30 - 13:30

Lunch break

13:30 - 15:00

Presentation of country papers and discussions

- Prof. K. Y. Sim (Singapore)
- Prof. Suwondo (Indonesia)
- Prof. Paolo Morisco (Bhutan)

15:00 - 15:15

Coffee break

15:15 - 16:30

Presentation of country papers and discussions

- Prof. B. H. Southavong (Laos)
- Prof. Chaudury Shamsul Alam (Bangladesh)

Wednesday, 20 December 1995

08:00 - 09:00

Commercialization/Marketing of Medicinal Plant based Products

- Ms. Moeryati Sudibyoy, President of the Jamu Factory

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ORIGINAL DOCUMENT**

10:45 - 12:30 **Other Speakers and General Discussion/Technical Cooperation**

12:30 - 13:30 **Lunch break**

13:30 - 16:30 **General Discussion/Technical Cooperation (continued) and Conclusions and Recommendations**

Regional Network engaged in different aspects of industrial utilization of medicinal plants. Adoption of Recommendations. Concluding remarks and distribution of certificates.

Friday, 22 December 1995

08:00 - 12:00 **Visit to Jamu Factory and to the Botanical Gardens**

FINANCIAL REPORT

Air Fare

<u>Account and Explanation</u>	<u>Balance</u>	
	Credit	Remarks
1. Air fare/travel for 20 participant	-	-
2. Air fare Expense	\$ 11,772	Received enclosed
3. Travel Expense	\$ 506.50	Received enclosed

Daily subsistence allowance

1. Daily allowance	-	-
2. Pocket Money	\$ 1668	Received enclosed
3. Accommodation	\$ 2485	Received enclosed
4. Food (Lunch & Dinner) 17 foreign participants	\$ 1600	Received enclosed
5. Taxi fare (Airport-Guest house)	\$ 200	Received enclosed

Proceeding

1. Postage Cost	\$ 1750	40 participants
2. Chief editor	\$ 1000	Received enclosed

Miscellaneous

1. Fax/Longdistance call/ Airway bill	\$ 720	Received enclosed
2. Proceeding 40 copies	\$ 2000	Received enclosed
3. Administration	\$ 439	Received enclosed
4. Rent car / Bus	\$ 1000	Received enclosed
5. Typist	\$ 600	Received enclosed
6. Coordinator Academic	\$ 750	Received enclosed
7. Financial Coordinator	\$ 750	Received enclosed
8. Administration Coordinator/Secretary	\$ 750	Received enclosed
9. Chairman	\$ 1250	Received enclosed

Total	\$ 29,240.50	
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