



# ICMR-NICED Library Newsletter

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### Herbal Medicines

It was a pleasant surprise to the scientific community in 2015 when the name of YouyouTu was announced for the Noble prize in physiology and medicine. She worked on traditional Chinese herbal extracts. She isolated artemisinin from *Artemisia annua* which is the only drug for malaria. It saved millions of lives from malaria. She started working as a young researcher while reading about history of traditional medicines. She isolated the active compound and tested it in animal models. Subsequently, she also performed experiments in patients suffering from malaria. So she actually combined her knowledge of traditional sources with high throughput research and eventually achieved her recognition. This is an interesting story as it was the first time that someone got Noble prize for working in the field of traditional herbal medicines although she was unrecognised in the elite scientific community.

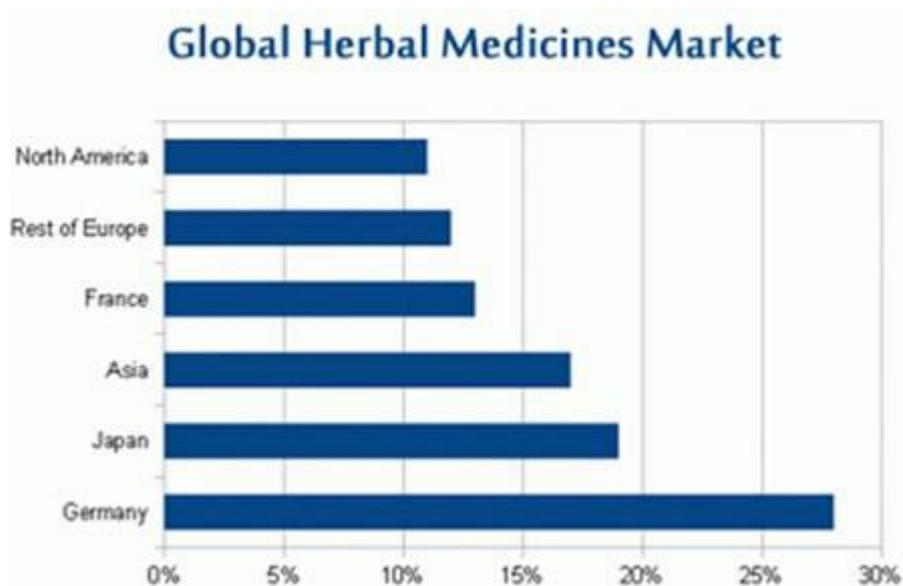


**YouYouTu**

### Worldwide herbal medicines:

Herbal medicines are nowadays as important as normal prescribed medicines due to their effectiveness. Traditional knowledge of herbal medicines is quite well known for thousands of years. Especially in Asian countries like China, Japan and India, practice of herbal medicines is very popular. Chinese traditional medicines are prevalent worldwide. Even in western countries like USA, Canada and Germany, Chinese medicines are used for treatment of different types of diseases (1). In Germany and France herbal medicines are

used as prescription drugs. In USA they are sold in health food stores. Therefore the usage of traditional medicines is conquering worldwide. The notion is that they are cost effective, less toxic and with minimal side effects. Use of conventional drugs have burden of side effects accompanied by a huge cost. Drug resistance is also an alarming cause for development of alternative therapeutic approach. 75-80% people use traditional medicines worldwide and more of them are found in developing countries(2,3). In the developing countries, herbal medicines are more acceptable culturally and they are also compatible with the human body having lesser side effects.



### Herbal Medicines conference 2015

#### Use of herbal drugs in India and abroad:

India has a history of usage of herbal medicines. From the Vedic times we hear about Atharva Veda, Sushruta Samhita and Charak Samhita. It is known from ancient history of Indian medicines that each and every plant has medicinal values. From this story Jeevak who is considered as a pioneer figure in the field of Medical Science wrote Jeevak Ayurveda. Ayurveda is practiced in our country about 5000 years back. In those ancient times practice of herbal medicines was prevalent in our country (3). Traditional drugs or alternative drugs are derived from the therapeutic experience of generations of practitioners. It has synthesis of historical knowledge and scientific basis. In our modern times, the most common anticancer drug used for chemotherapy is paclitaxel which is herbal in origin extracted from *Taxusbrevifolia*. Therefore it is interesting to use our traditional knowledge in practising medical science every day. Other products like vincristine, vinblastine from *Catharanthusroseus* are also used as anticancer drugs. Reserpine from *Rauwolfiaserpentina* is used as hypotensive drug (2). So there are different types of active compounds extracted from plants which are used for medicinal purposes in a large scale. Growing use of herbal medicines in this modern world is becoming popular day by day. Synthesis between usage of herbal medicines and scientific procedures are recommended for the development of traditional medicines.



*Catharanthus roseus*



*Rauwolfia serpentina*

The Noble prize committee acknowledged Youyou Tu for not only herbal medicines but the way she adopted the scientific procedures to save millions of lives. Thus there is a need to develop new methods for extraction, evaluation and synthesis of herbal compounds which will be productive, cost effective and non toxic. Global market for herbal medicines is increasing day by day because of detrimental side effects of synthetic drugs and resistance to different drugs like antibiotics. Countries like USA and Japan use Nutraceuticals which are health food made of herbal products (2). Medicinal plants play a great role as food supplements. In USA alone 80-250 billion are sold as health food. Demands for these types of natural products are there in Europe and Japan also (4). Therefore it shows the global demand for natural products. As compared to China, India is second in export of herbal products. The major products for export are the medicines and medicaments of ayurvedic, herbal and homeopathy products. *Psyllium* seeds and Senna leaves are exported in highest number. These two are used as laxative agent. *Psyllium* seeds are also used for reducing cholesterol. They have huge market abroad. But still we are far

behind Chinese herbal medicines as the global demand of our medicines is almost half of the Chinese. China has made an incredible advancement in combining traditional herbal medicines with modern drug delivery techniques. In contrary, India has a wealth of knowledge for traditional medicines but still we are lagging behind and cannot achieve that stage. In order to compete globally with Chinese market India has to standardize and operate the techniques and procedures to develop effective drugs which are less toxic and effective. There were reports of heavy metal intoxication in USA due to usage of herbal medicines.

#### **Future of India in Herbal medicines:**

India owns a very rich biodiversity with the presence of over 15,000-25,000 medicinal plants among which 7000 to 8000 are under medical practice (5). But to become a global exporter of medicines we need to standardize our scientific procedures. For preparation of herbal drugs we need to prepare proper extracts in powdery form. It is essential to clarify and authenticate that the medicinal plant parts are free from pesticides, heavy metals, microbial or radioactive contamination. The bioactive principle should be isolated from plant extracts and used in animal models. It should be well defined and examined in *in vivo* models for toxicity. In the final stage, they should be tested in human subjects for clinical trials. Processing of medicinal plants in a proper scientific manner would be effective and safe. Appropriate documentation is also prerequisite for preparation of herbal medicines. The Government of India has formed a separate ministry for the department of Ayurveda known as AYUSH to make advancement in the field of herbal medicines in a modern scientific approach. The concept of biomedicine will evolve in a new dimension based on scientific facts and data. We hope that in the near future our destiny will be higher than what globally Chinese medicines have achieved. There might be another example of Youyou Tu in India achieving a global recognition of our age old traditional medicines.

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### Services offered by the staff of ICMR-NICED Library

#### Services offered regularly:

- Issue and return of Books and journals: This service is offered to the users of the Institute only. The users include the scientists and the research fellows.
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- Routing of mails to the different departments of the Institute: Institute has a mail Id: [nicedlibrary@gmail.com](mailto:nicedlibrary@gmail.com). Mails from outside users for different departments are routed by the staff of the Library.
- Updating information in the ICMR-NICED webpage: This is done by the Library on receiving inputs from the scientists and different departments of the Institute. Inputs from scientists include updates in their profile. Inputs from different departments include uploading of tenders, advertisements, important office notice in the website. Library compiles the ICMR-NICED publications and uploads that in the website.
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service during their assessment.

- Document Delivery Service: This service is provided from JGate as and when requested by the users of other ICMR Institutes. Document Delivery Service is also offered to the scientists of the Institute from the publishers of the journals.
- Reference Service: This service is provided to the users of the Institute as well as requests received from the outside users over telephone or through mail.
- Facilitating in the reprint charge of the articles of the scientists in journals: The administrative work towards payment of reprint charge of articles published by scientists in journals is done from the Library.

**Publication services:**

- ICMR-NICED Library helps in compiling ICMR Bulletin information that is sent on a quarterly basis to ICMR.
- ICMR-NICED Library helps in compiling information for the ICMR-NICED Annual Report.
- ICMR-NICED Library published the Library Newsletter. This publication is designed by the library and is uploaded in the ICMR-NICED website.

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- ICMR-NICED Library has helped in compiling different reports for ICMR. The recent ones include Research Framework Document.
- ICMR-NICED Library has been involved in preparation of Sophisticated Analytical Instrument Facility for ICMR-NICED.

