

Adding science to Asian traditional medicine



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TRADITIONAL medicines of Asia especially those from India and China are fast gaining recognition globally. These systems date back thousands of years. In this, Asia is truly ahead of the West.

Traditional medicine backed by the cutting edge of science is coming back in a big way the world over. Indeed, supplements based on science have grown tremendously during this financial crisis. Asian traditional medicine is big in North America and Europe these days.

Traditional medicine (also known as indigenous or folk medicine) is medical knowledge systems that developed over generations within various societies before the era of modern medicine.

Practices known as traditional medicines include herbal, Ayurveda, Siddha medicine, Unani, ancient Iranian medicine, Islamic medicine, traditional Chinese medicine, acupuncture and other medical knowledge and practices all over the globe.

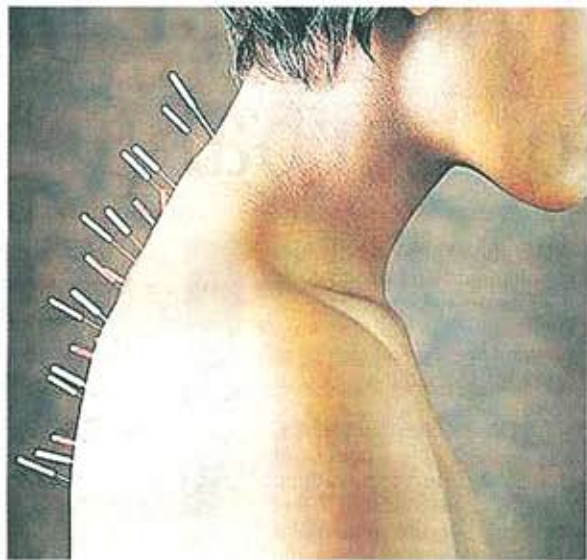
The World Health Organisation defines traditional medicine as "the health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or to maintain an overall well-being".

It is believed that up to 80 per cent of the population relies on traditional medicine for their primary health care needs. When adopted outside of its traditional culture, traditional medicine is often called complimentary and alternative medicine.

Core disciplines which study traditional medicine include ethnobotany, ethnopharmacology, and medical anthropology.

Many of today's leading drugs come from chance or folklore and from traditional medicine. Indeed, 60 per cent of anticancer and 75 per cent of anti-infective drugs approved from 1981-2002 came from natural product leads. Over 100 natural product-based drugs are now in development.

Just look at some drugs that come from Ayurveda — the Indian ancient science of healing. Among them are psoralens (from Indian breadroot *Psoralea corylifolia*) for vitiligo, velvet bean (cowitch; *Mucuna pruriens*) for Parkinson's disease, antiviral phyllanthins (from phyllanthus; curcumins (from turmeric *Curcuma longa*) for inflammation, immunomodulatory withanoids (from ashwagandha —



Acupuncture is the practice of inserting thin needles into specific body points to improve health and well-being. It originated in China more than 2,000 years ago. It is known to reduce pain.



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Withania somnifera) which are in clinical trials in the United States as an adjuvant for cancer treatment and more.

Indeed, this has led to the concept of "reverse pharmacology" which mines clinical experience and experiential observation for leads, and develops drug candidates through robust preclinical and clinical research.

The modern medicine paradigm is an art of discovering a potentially toxic but likely effective compound and then subjecting it to laboratory studies. It is an approach called "mice to man".

In "reverse pharmacology", you look for a compound that was used safely in man for ages and then knowing it is safe and effective, subjecting it to analysis for better understanding of the mechanism of action in an approach called "man to mice".

Sir Ram Nath Chopra and Gananath Sen founded the approach. They documented the clinical effects of Ayurvedic drugs. Rauwolfia (snakeroot; *Rauwolfia serpentina*) alkaloids for hypertension were their major discovery, and led to new antidepressants, anti-Parkinson's drugs and prolactin-reducing drugs.

Promising work began in the 1970s

and 1980s in a joint programme of the Indian Council of Medical Research (ICMR) and the Indian government's Council for Scientific and Industrial Research (CSIR).

This resulted in two breakthroughs — guggulipid for cholesterol lowering and a memory-enhancing product from bacopa.

To better develop the potential of herbal drugs, CSIR, under a New Millennium Indian Technology Leadership Initiative (NMITLI), has initiated projects on psoriasis, osteoarthritis, hepatitis, and diabetes.

ICMR established an Advanced Centre of Reverse Pharmacology, initially focusing on malaria, sarcopenia, and cognitive decline. The psoriasis project has led to an Investigational New Drug application in India; the product, a single plant extract, is in Phase 3 trials and will meet FDA standards as well as those of India's regulators.

In another project, new vaccine adjuvants were sought. Besides molecular drug leads, both Ayurveda and traditional Chinese medicine offer multiherb approaches to polygenic conditions.

Internationally, the Indian Department of Ayurveda, Yoga, Unani, Siddha, and Homeopathy has established a research centre at the University of Mississippi (Oxford) to

study Indian herbal medicines.

In Tanzania, the Tanga AIDS Working Group, Global Research Alliance, World Bank, and US National Institutes of Health have partnered to study traditional herbs used in AIDS and its opportunistic infections.

Traditional Chinese Medicine (TCM) includes such treatments as herbal medicine, acupuncture, dietary therapy and Shiatsu massage. Qigong and Taijiquan are also closely associated with TCM.

TCM claims to be rooted in meticulous observation of nature, the cosmos, and the human body, and to be thousands of years old. Major theories include those of Yin-yang, the Five Phases, the human body Channel system, Zang Fu organ theory, six confirmations, four layers, etc. Modern TCM was systematised in the 1950s under the People's Republic of China and Mao Zedong.

In China, an ambitious programme of high-throughput screening, toxicity testing and clinical trials of popular medicinal recipes, Herbalome, will identify scores of drug leads.

"The Herbalome Project is the latest—and most ambitious—attempt to modernise traditional Chinese medicine. The venerable concoctions—as many as 400,000 preparations using 10,000 herbs and animal tinctures — are the treatment of choice and often the only recourse for many in China.

In the 1970s, TCM tipped off researchers to *qinghaosu*, a compound in sweet wormwood whose derivatives are potent antimalaria drugs.

A lot of work is also ongoing in Tsinghua University — China's leading science and technology university. Initial targets are cancer, liver and kidney diseases, and illnesses that are difficult for Western medicine to treat, such as diabetes and depression."

Jamu medicine is the traditional medicine practised in the Malay peninsula and Indonesia. The study of jamu had been conducted by Rumphius, a botanist as early as the year 1775 AD by publishing a book *Herbaria Amboinesis*.

A scientific research for jamu by the research centre of herbal medicine in Bogor Botanical Garden, resulted in the publication of a book called *Medical Book for Children and Adults*, by E. Van Bent.

The first seminar about jamu was held in Solo in 1940, followed by the Formation of Indonesia's Jamu Committee in 1944. In 1966, a seminar on jamu was again held. In 1981, a book titled *The use of Medicinal Plants* was published to support the jamu industry in the country.

There is science coming into that as well with research taking place in various Indonesian and Malaysian universities.

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Pomegranates may reduce cancer risk

ENZYME-blocking chemicals in pomegranates may reduce the risk of estrogen-fuelled breast cancers, US researchers said.

An acid found in pomegranates appears to block aromatase, an enzyme that converts androgen to estrogen, a hormone that plays a role in the development of breast cancer, the researchers wrote in the journal *Cancer Prevention Research*.

"We identified some of these chemicals in pomegranates that actually have properties that can suppress aromatase," researcher Shiuian Chen, of the City of Hope cancer research and treatment centre in Duarte, California, said.

Many women who have had breast cancer take medicines called aromatase inhibitors — such as Pfizer's Aromasin, Novartis' Femara and AstraZeneca Plc's Arimidex — to keep estrogen from feeding tumours.

Chen and colleagues studied whether compounds, or phytochemicals, in pomegranates can suppress aromatase and ultimately block cancer growth. They found that 10 natural compounds in the fruit may potentially prevent estrogen-related breast cancer.

Chen said the compounds would not be a replacement for aromatase inhibitors.

"We do not recommend people start taking this as a replacement for the AI's," Chen said.

"They (pomegranate compounds) are not as potent as the real drugs so we think that the interest probably is more on the prevention end rather than in a therapeutic purpose."

Other researchers not associated with the study told the journal that the results are promising, and suggested more studies involving animals and humans were needed to confirm the findings.

"It's not clear that these levels could be achieved in animals or in humans because the (compounds) are not well absorbed into blood when provided in the diet," said Gary Stoner of Ohio State University.

Dr Powell Brown, an oncologist at the University of Texas, said in a statement that future studies should focus on testing pomegranate juice for its effect on estrogen levels, menopausal symptoms, breast density or even as a cancer preventive agent.

More than 400,000 women die from breast cancer globally every year. About 75 per cent of breast cancers are estrogen-receptor positive, meaning they are fed by estrogen.

Previous research has shown that pomegranate juice is rich in antioxidants — vitamins and other substances — that may help prevent diseases such as cancer, heart disease and Alzheimer's disease. — Reuters