

Toil and trouble in China over Nobel medicine prize

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China's Tu Youyou collects her country's first Nobel Prize for medicine next week for extracting an anti-malarial drug from a herb mentioned in a traditional text, but her award has prompted debate over the role of science in the practice.

Tu derived artemisinin from sweet wormwood, which she found cited in a 4th century traditional Chinese medicine (TCM) document as a fever treatment, developing a crucial weapon in the global fight against the mosquito-borne disease as resistance to other treatments spread.

Traditional medicine is a source of cultural pride in some Chinese quarters, with Beijing planning to expand its provision, and even Premier Li Keqiang seized on the Nobel award, hailing Tu's discovery as "a great contribution of TCM to the cause of human health".

But Nobel committee member Hans Forssberg was adamant: "It's very important that we are not giving a prize to the [traditional medicine](#)," he said, stressing that the award was only for scientific work that had been inspired by it.

TCM practitioners say her recognition could encourage similar research that may sideline the underpinnings of their theories.

TCM is based on a set of beliefs about human biology, including the existence of a life force, "qi", and that illness is the result of "imbalances" between the five elements—fire, water, earth, metal and

wood—in the system.

There is no orthodox evidence for such concepts, and the respected scientific magazine *Nature* has described TCM as "largely just pseudoscience, with no rational mechanism of action for most of its therapies", calling them an "arcane array of potions and herbal mixtures".

In contrast, Tu chemically extracted the active ingredient of a single plant in isolation.

"Many fear that the recent Nobel Prize, which celebrates westernised Chinese medicine, will end up doing more harm than good for authentic traditional medical practice," said Lan Jirui, who has a booming TCM private practice in Beijing.

Describing her research as a victory for TCM was "reckless", said the state-run *China Daily*, arguing that would encourage Westernised reforms that ignore traditional theories about the body as a holistic system.

"You should not use Western science to 'cure' Chinese medicine," Lan said, calling the study of TCM from a rationalist perspective "essentially hopeless".

"The human body is very complicated—you cannot see it only as a machine," he added. "The scariest thing is to lack confidence in your own traditions, to allow others to 'update' you, and then destroy what you had."

Rhino horn

Many mainstream medicines were originally derived from plants, and

some researchers are looking for active ingredients in TCM components, even though Tu failed to find other such drugs despite years of efforts.

"It's good to look into ethnopharmacology," said Tai-Ping Fan, head of the Chinese Medicine Laboratory at the University of Cambridge.

"Medicine has evolved since the dawn of humanity, and science," he added. "We need to have evidence. But there's the possibility now, thanks to science, to begin to discuss this problem, how we can see East and West come together."

With no standardised guidelines, TCM can offer radically different diagnoses—based on observation and pulse-taking—for the same symptoms.

Similarly, prescriptions are highly variable, made up of multiple herbs, minerals and animal parts—sometimes from endangered species, now officially banned—along with massages, acupuncture and other treatments.

"I think it'd be quite good really to find out what is there in rhino horn instead of throwing it all away," said Fan. "Those that have been confiscated can be sent to laboratory and analysed and synthesised."

National health

TCM is an enormous industry in China, with a total value in excess of \$91 billion in 2013, a third of the total output of the country's medical industry, according to the official news agency Xinhua.

In recent years the government has upped funding and support, even though most health facilities use orthodox medicine, and national healthcare guidelines released in May said every county and municipality

should seek to have a dedicated TCM hospital by 2020.

"TCM should be China's solution for improving its medical care," especially as it was "relatively cheaper than Western medicine", Wang Guoqiang, director of the State Administration of TCM, told a conference last year.

"TCM is a form of heritage passed down from our ancestors that can offer an instructive approach to modern medical reform," he added.

But specialists say there is an internal contradiction between the nationalism implicit in such assertions and TCM's claims of universal applicability.

"It is essential to keep the struggle for cultural identity separate from actual medical practice," said Volker Scheid, an anthropologist at London's University of Westminster who has studied TCM for 30 years.

"I'd say 95 percent of Chinese would think that I cannot be a very good TCM practitioner because I'm not Chinese, but at the same time, China wants to make Chinese [medicine](#) global.

"If you want to make it truly global, you have to take it away from China."

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