

# Study finds anti-cancer properties in local plants

Findings could lead to development of new pharmaceutical drugs in future: Researcher

Rei Kurohi

Some plants commonly found in nature reserves and community gardens in Singapore could one day be made into pharmaceutical drugs for treating cancer.

A study by researchers from the National University of Singapore (NUS) found that leaf extracts taken from medicinal herbs used in South-east Asian folk medicine were effective in stopping the growth of seven types of cancer.

Associate Professor Koh Hwee Ling of the NUS Faculty of Science's Department of Pharmacy, who led the study, said: "Although Western medicine is the primary form of healthcare in Singapore, there are still people using fresh medicinal plants for their healthcare needs, sometimes together with Western medicine," she said.

For a previous study published in 2014, also led by Prof Koh, the team conducted face-to-face interviews with 200 local users of fresh medicinal plants between 2010 and 2013.

A total of 104 plant species were documented, along with the participants' usage patterns, dosages, reasons for and methods of use.

For the new study, the team focused on seven plants commonly believed to be effective in treating or preventing cancer.

Leaf extracts from the plants were obtained using different solvents and extraction methods. The samples were tested for 48 hours on 12 cell lines – colonies of cells with the same genetic make-up – from seven types of cancer: breast, cervical, colon, liver, ovarian and uterine cancers, and leukaemia.

The most promising results came from a plant called *Leea indica*, also known as bandicoot berry or memali. It was found to have strong or moderately strong effects on all the cell lines except for the leukaemia.

**Surprisingly, the most popular plant among users interviewed, *Clinacanthus nutans*, was found to be the least effective, Prof Koh (Hwee Ling) said. Better known as Sabah snake grass, it was found to have weak effects or no effect in almost all the cell lines.**

mic cells, on which the effects were more varied.

Two other plants – *Vernonia amygdalina* (South Africa leaf or bitter leaf) and *Vitex trifolia* (simple-leaf chastetree or legundi) – also showed promising results against most of the cell lines.

*Pereskia bleo* (rose cactus or seven star needle) was effective against five types of cancer: cervical, colon, liver, ovarian and uterine cancers.

Two others – *Clausena lansium* (wampee or fool's curry leaf) and *Strobilanthes crispus* (black face general or pokok pecah beling) – showed mixed results and were effective against some cell lines when certain extraction methods and solvents were used.

Surprisingly, the most popular plant among users interviewed, *Clinacanthus nutans*, was found to be the least effective, Prof Koh said.

Better known as Sabah snake grass, it was found to have weak effects or no effect in almost all the cell lines even though it was frequently reported to be used by cancer patients in the region.

Many users told the researchers that they had heard about its anti-cancer properties from friends or read about it online.

Prof Koh said: "One possibility could be that it may be helping cancer patients in other ways, rather than killing the cancer cells directly. Some also use it for general health purposes."

She added that the findings provide some scientific backing for the use of medicinal plants in regional folk medicine and could lead to the development of new pharmaceutical drugs in the future.

While some of the plants documented in the survey are used in traditional Chinese medicine, which has its own body of research, others were used by native peoples and the knowledge was passed down verbally from older generations.

Dr Siew Yin Yin, the first author of the study, said: "There is a pressing need to document and investigate how indigenous medicinal plants were used before the knowledge is lost."

More research is still needed to identify the active compounds in the plants before a drug can be developed, said Prof Koh. "Those interested in using these plants should consult qualified medical practitioners and healthcare professionals rather than self-medicating."

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NUS researchers (from left) Neo Soek Ying, Koh Hwee Ling and Siew Yin Yin – part of the team behind the new study – with some medicinal plants. The study found that leaf extracts taken from herbs used in regional folk medicine were effective in stopping the growth of seven types of cancer. ST PHOTO: ALPHONSUS CHERN

## Medicines in the garden

Researchers want to document and investigate how plants were used in folk medicine before the knowledge is lost.

### *Clausena lansium* Wampee, fool's curry leaf

• An evergreen tree with a strong scent native to southern China and grown in parts of South-east Asia. Its sweet-sour fruit is edible and resembles a yellow-skinned grape. Users also boil and drink the leaves and fruit.



### *Leea indica*

Bandicoot berry, memali

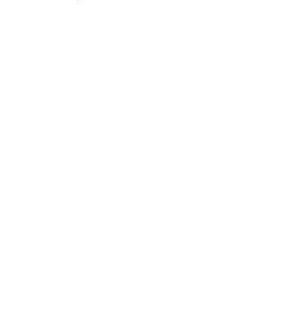
• A shrub or small tree with ribbed branches and spirally arranged leaves. It is native to South Asia and South-east Asia, and can be commonly found in Singapore. The dried leaves are often boiled and consumed as a tea.



### *Vitex trifolia*

Simple-leaf chastetree, legundi

Its stem and the underside of its leaves are covered in soft hairs. Found throughout Asia, Australia and the Pacific Islands. In traditional Chinese medicine, the fruits are consumed to treat fever, headache and conjunctivitis.



### *Strobilanthes crispus*

Black-face general, pokok pecah beling

• Native to Madagascar and Indonesia. Its dark green leaves have a rough texture and are said to help with kidney problems and diabetes. Users commonly boil the leaves and stem into a tea and drink it. The leaves can also be bought commercially as a herbal tea "detox" product.



### *Pereskia bleo*

Rose cactus, seven-star needle

• A cactus shrub native to Panama and Colombia with large orange flowers and thorns on its branches measuring between 5mm and 10mm. Users in Singapore and Malaysia usually chew the leaves raw or boil and drink them.



### *Vernonia amygdalina*

South African leaf, bitter leaf

• The leaves have a characteristic odour and a bitter taste. The plant is native to Nigeria and common in Singapore and Malaysia. It has many medicinal properties and is eaten as a vegetable in Africa.



### *Clinacanthus nutans*

Sabah snake grass, belalai gajah

• A plant native to Indonesia and other parts of South-east Asia that was originally used to treat snake bites. Its purported efficacy against cancer has been spread through blogs, e-mails and word of mouth, making it popular among users here. The leaves are often juiced or boiled into a tea.

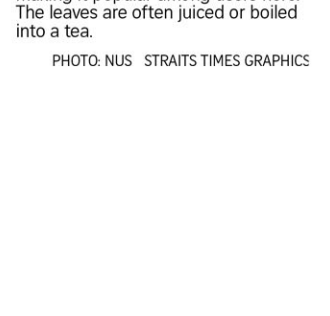


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