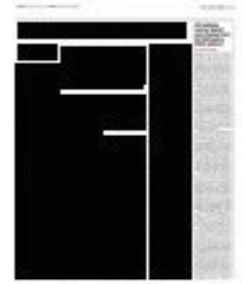


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From kitchen to pharmacy

Traditional herbs' health benefits are increasingly studied and scientifically proven.

BY ANNIE GEORGE



It is typical to find ulam (vegetables, fruits or herbs eaten raw) in a Malay meal, consisting of ulam raja, pucuk paku, kesum, pegaga and petai, to name a few. The herbs used in ulam are also used to make nasi kerabu or nasi ulam, and other dishes. Their contribution to the colour and taste of Malaysian cuisine aside, there has been recent evidence pointing to the fact that some of these herbs are high in antioxidants and possess health-promoting properties, and have been used traditionally to treat diabetes and high blood pressure.

Case for kesum

Kesum (*Persicaria minor*, syn *Polygonum minus*), used in laksa due to its peppery flavour, is among the herbs found to have high levels of antioxidants. Antioxidants are important in neutralising the damaging effects of free radicals by reducing oxidative stress, which can otherwise cause cell damage. Oxidative stress is one of the culprits that speed up ageing and age-related diseases, such as neurodegeneration, inflammation that causes osteoarthritis, cardiovascular disease and compromised immunity.

Scientific investigation into kesum has demonstrated the ability of the herb to protect living cells against damage from oxidative stress. It was also shown to inhibit acetylcholinesterase activity, whereby the enzyme acetylcholinesterase metabolises acetylcholine, a neurotransmitter in the brain related to learning and memory. Inhibition of acetylcholinesterase is presently the most accepted and rec-

ognised therapeutic marker for the development of memory-improving drugs. Herbal plants with acetylcholinesterase inhibitory activity will open new possibilities for improving cognition and, therefore, memory.

Professor Suzana Shahar of Universiti Kebangsaan Malaysia conducted a clinical trial on middle-aged populations, with one group taking an extract of kesum daily and the other a placebo. The subjects were given a series of psychological and intelligence tests at the commencement of the study, after three weeks and after six weeks. The group receiving kesum extract scored higher in overall good mood, short-term memory and intelligence quotient. It was found that several parameters of cognitive function improved. This 2015 study, reported in the journal *Clinical Interventions in Aging*, has piqued interest in the popular herb.

Among those who have shown clear interest is ethnobotanist Chris Kilham (*pic*), dubbed the "Medicine Hunter", who was in Malaysia early this year to gain a better understanding of the herb. In a recent write-up on this experience on the American Botanical Council website, Kilham noted that kesum is also known as pygmy smartweed and has been linked to several highly effective health-benefiting properties. Published chemical analyses and in-vitro pharmacological studies, he said, suggest that kesum leaves have antibacterial, antifungal, antioxidant, antiviral and cytoprotective properties. And the leaves are known to contain an array of antioxidant compounds.

In addition to meeting up with traditional healer Datin Sharifah Anisah Syed Agil Barakbah, the founder of Nona Roguy, who observes that the herb has been traditionally consumed as food for health and beauty, Kilham also spoke to staff of the Forest Research Institute Malaysia (FRIM), who shared the latest developments on kesum. He understands that FRIM is developing two kesum-based health product concepts — one is a seasoning comprising a mixture of dried kesum leaves and

sea salt, while the other is an "antioxidant digestive beverage".

A different take on Tongkat Ali

Another Malaysian plant Kilham is familiar with is Tongkat Ali (*Eurycoma longifolia*), which he has worked on for more than 10 years. His inclusion of Tongkat Ali in his list of "Top 10 Hot Plants" for vitality, along with herbs like ginseng and maca, has contributed to its popularity in the US and spurred international curiosity. An apparent result of this is a long list of clinical studies that has proved the root's efficacy in boosting not only energy and strength, but also immunity. Today, interest in Tongkat Ali has moved well beyond its aphrodisiac effects.

Malaysians are subject to many viral-borne diseases, and the most alarming one at the moment is dengue. It causes morbidity and mortality, and while medication is limited, a robust immune system protects the body from succumbing totally to the disease. A study on stressed but healthy subjects, conducted by Japan's Orthomedico Inc, demonstrated naive T-cell and lymphocyte increments with Tongkat Ali supplementation, thus enabling the warding off of new diseases in stressed populations typically prone to infections.

In a separate study conducted by the Tropical Infectious Diseases Research and Education Centre, Department of Medical Microbiology,

Faculty of Medicine, University of Malaya, the researchers have shown that Tongkat Ali has the ability to reduce the replication of four different serotypes of the dengue virus. This finding is novel and is currently being patented for antiviral properties.

While these are some of the latest findings on Tongkat Ali, earlier research has shown it to be effective in increasing energy and improving mood, especially in stressed subjects, and also in increasing physical strength and the quality of life in ageing populations, proving that this plant is one to be reckoned with.

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Other commonly used herbs

In 2010, scientist Dr Jay Udani of Medicus Research LLC in the US conducted a clinical study on the improvement of memory using a combination of seven herbs found in Malaysia, namely sireh (Piper betle), turmeric (Curcuma longa), pegaga (Centella asiatica), curry leaf (Murraya koenigii), selasih (Ocimum basilicum), kesum and ulam raja (Cosmos caudatus). A significant improvement in executive functioning, cognitive flexibility, reaction time and working memory in as little as four hours after ingestion was observed when subjects consumed this combination product. The herbs in the combination have neurostimulatory as well as blood circulation and memory-enhancing properties, which lead to an improvement in a broad spectrum of cognition.

Another herb commonly used is misai kucing (Orthosiphon stamineus), also known as Java tea. It is taken as a decoction that is able to rid one of kidney stones and has been clinically tested to reduce high blood pressure. Recently, it has also been shown to help improve memory in rats by targeting the receptors typically stimulated by caffeine. Hence, the findings suggest that the consumption of this tea may promote alertness and short-term memory. Misai kucing contains many flavonoids and polyphenols, which protect the cells and are also known to be highly antioxidative.

Likewise, Kacip Fatimah (Labisia pumila) has been taken traditionally for women's health, especially to regain one's figure and energy in the post-partum period. Recent clinical studies conducted by Canada's KGK Science and Universiti Sains Malaysia (USM) with Professor Dr Nik Hazlina Nik Hussain and Associate Professor Dr Norhayati Mohd Noor from the USM School of Medical Sciences have discovered that women on Kacip Fatimah are calmer, get back into shape faster as a result of reduced bloatedness and have an improved quality of life.

Another common traditional herb is dukung anak. (Scientifically known as Phyllanthus, it has a number of species varieties, with P amarus, P niruri, P urinaria and P debilis among the common varieties found in Ma-

laysia and other Asian countries.) It has liver protective effects and has been used in patients with hepatitis to normalise liver enzymes and liver health. It is also known to protect against alcohol toxification — alcoholic steatosis (reversible) and alcoholic steatohepatitis, both steps in the path towards alcoholic liver disease.

Making it to the market

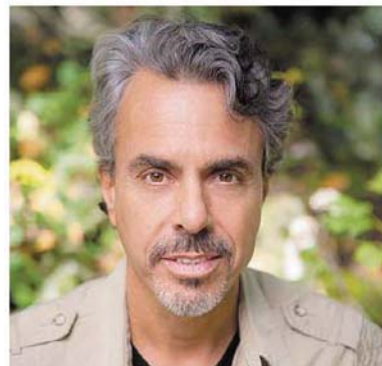
As herbs and medicinal plants provide many different compounds that may be affected by climate, soil conditions and time taken to reach maturity, this needs to be taken into consideration when developing natural products, so that they consistently contain the active compounds — in other words, it must be ensured that they are standardised when sold as supplements.

Many of these herbs are already commercially available as supplements, including Tongkat Ali, Kacip Fatimah, misai kucing, kesum and dukung anak. The value of sales of herbal and traditional dietary supplements in Malaysia grew from RM424.2 million in 2010 to RM532.7 million in 2015 (Euromonitor, 2015). This compares with RM451.5 million in 2010 to RM622.5 million in 2015 for non-herbal and non-traditional dietary supplements (which include fish oils, minerals and protein supplements), and RM315.4 million to RM423.7 million for vitamins.

The latest trends are seeing a shift of consumer preference to natural therapy for health and wellness with a high degree of convenience. With the proven benefits of its local herbs, Malaysia has much to offer the world in this market segment.

Perhaps Kilham put it best when talking about the benefits of kesum in a February segment of Fox News' Health Talk: "What has been 'kitchen medicine' ... is also transitioning, thanks to pharmaceutical technology, into forms that, if you are not eating Southeast Asian food, you can also enjoy as a supplement."

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