

Phytochemicals to fight cancer

1 July 2020, by David Bradley

Phytochemicals from the plant *Ipomea sepiaria* may be useful in the fight against cancer according to a pharmacoinformatics study published in the *International Journal of Computational Biology and Drug Design*. The research undertook "in silico", computer-based, studies of the various chemicals found in this species against a range of enzymes known as metallopeptidases. Inhibiting the activity of these enzymes found in cancer cells could impede the replication of those cancer cells and potentially halt tumour growth in its tracks.

Thousands of plants contain natural products, chemicals that have physiological activity. Indeed, around 40 percent of modern pharmaceuticals had their roots in botanical natural products. The convolvulus plant species, *I. sepiaria*, is well known as a component of Ayurvedic medicine in the form of Lakshmana used as a laxative. It is purported to act as an antidote to [arsenic poisoning](#) and also be an aphrodisiac, although solid randomized, double-blind, placebo-controlled [clinical trials](#) are not yet forthcoming for many of the claims around this plant's medicinal properties.

S.S. Ariya and Baby Joseph of the Hindustan Institute of Technology and Science, in Chennai, India, and Jemmy Christy of the Sathyabama Institute of Technology and Science, also in Chennai, point out that cancer is a leading cause of death worldwide. As such, the development of anticancer and antineoplastic drugs is high on the pharmaceutical industry's agenda. The team has now screened 247 phytochemicals identified in *I. sepiaria* against their enzyme computer model.

The screen showed that eight chemicals, tetradecanoic acid, nerolidol, ipomeanine, dibutyl phthalate, cis-caffeic acid, caffeic acid, moupinamide, and N-cis-feruloyltyramine were active against the target enzymes and so might be further explored as potential anticancer drugs. Moreover, these compounds performed better in the tests than four different drugs currently available in the cancer therapy arsenal. Of course, the next step is to take the "in silico" results to the

laboratory testing, in vitro, stage and then to animal testing and finally human trials. The compounds are promising, but as ever with [drug](#) development, the path from discovery to market is long and tortuous.

It should be noted that while there may be physiological activity in the folklore remedy of Lakshmana, its use is no substitute for a medical consultation with an oncologist when [cancer](#) arises and the adherence to proven therapies for the best prognosis for the patient.

More information: S.S. Ariya et al. Exploring the antineoplastic effect of phytochemicals from *Ipomea sepiaria* against matrix metallopeptidases: a pharmacoinformatics approach, *International Journal of Computational Biology and Drug Design* (2020). [DOI: 10.1504/IJCBDD.2020.107889](https://doi.org/10.1504/IJCBDD.2020.107889)

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