

Neem may reduce prostate tumour: NUS Study

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Singapore: A team of international researchers led by Associate Professor Gautam Sethi from the Department of Pharmacology at the Yong Loo Lin School of Medicine at the National University of Singapore (NUS) has found that nimbolide, a bioactive terpenoid compound derived from *Azadirachta indica* or more commonly known as the neem plant, could reduce the size of prostate tumour by up to 70 per cent and suppress its spread or metastasis by half.

Prostate cancer is one of the most commonly diagnosed cancers worldwide. However, currently available therapies for metastatic prostate cancer are only marginally effective. Hence, there is a need for more novel treatment alternatives and options.

"Although the diverse anti-cancer effects of nimbolide have been reported in different cancer types, its potential effects on prostate cancer initiation and progression have not been demonstrated in scientific studies. In this research, we have demonstrated that nimbolide can inhibit tumour cell viability, a cellular process that directly affects the ability of a cell to proliferate, grow, divide, or repair damaged cell components, and induce programmed cell death in prostate cancer cells," said Assoc Prof Sethi.

Cell invasion and migration are key steps during tumour metastasis. The NUS-led study revealed that nimbolide can significantly suppress cell invasion and migration of prostate cancer cells, suggesting its ability to reduce tumour metastasis.

The researchers observed that upon the 12 weeks of administering nimbolide, the size of prostate cancer tumour was reduced by as much as 70 per cent and its metastasis decreased by about 50 per cent, without exhibiting any significant adverse effects.

"This is possible because a direct target of nimbolide in prostate cancer is glutathione reductase, an enzyme which is responsible for maintaining the antioxidant system that regulates the STAT3 gene in the body. The activation of the STAT3 gene has been reported to contribute to prostate tumour growth and metastasis," explained Assoc Prof Sethi. "We have

found that nimbolide can substantially inhibit STAT3 activation and thereby abrogating the growth and metastasis of prostate tumour," he added.