

Withania somnifera and its emerging anti-neoplastic effects

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To the Editor,

I read with great interest the recent article by Minhas et al. (2012). *Withania* may exert a number of anti-proliferative effects besides its protective role in SLE.

Withaferin A and withanolide are both extracted from *Withania*. Of these, withaferin A is the most potent though withanolide also exhibits growth inhibiting activity (Choudhary et al. 2010). These anti-proliferative effects are clearly seen in NCI-H460 lung cancer cell lines (Yadav et al. 2010). Similarly, when applied to lung cancer cell lines, *Withania* augments the anti-neoplastic effects of chemotherapeutic agents such as paclitaxel (Senthilnathan et al. 2006). *Withania* extracts appear to have an immunomodulatory effect and enhance paclitaxel-induced inhibition of cell proliferation. Witharin also appears to be a radio sensitizer as it increases radio sensitivity of tumors and thereby enhances the apoptotic effects of radiotherapy (Muralikrishnan et al. 2010).

Withania extracts appear to inhibit proliferation in HCT-15 colon cancer cell lines. For instance, it attenuates azoxymethane-induced colon cancer by modulating the levels of immunoglobulins G, A, and M and by exerting direct anti-proliferative effects (Mathur et al. 2004).

1-oxo-5beta, 6beta-epoxy-witha-2-enolide derived from *Withania* root has shown efficacy in the management of ultraviolet-B-induced dermatological carcinomas (Devi et al. 1996). *Withania* also appears to play a role in

chemoprevention of skin malignancies. For instance, extracts from *Withania* roots have been shown to prevent the development of 7,12-dimethylbenz[a]anthracene (DMBA)-induced skin cancers (Prakash et al. 2002).

The above examples clearly illustrate the anti-proliferative effects of *Withania* and the need for further studies in this regard.

Conflict of interest No conflicts of interest.

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