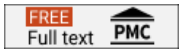


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> [Oncotarget](#). 2016 Nov 8;7(45):73080-73100. doi: 10.18632/oncotarget.11485.

# Dandelion root extract affects colorectal cancer proliferation and survival through the activation of multiple death signalling pathways

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Affiliations

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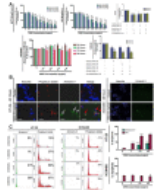
## Abstract

Dandelion extracts have been studied extensively in recent years for its anti-depressant and anti-inflammatory activity. Recent work from our lab, with in-vitro systems, shows the anti-cancer potential of an aqueous dandelion root extract (DRE) in several cancer cell models, with no toxicity to non-cancer cells. In this study, we examined the cancer cell-killing effectiveness of an aqueous DRE in colon cancer cell models. Aqueous DRE induced programmed cell death (PCD) selectively in > 95% of colon cancer cells, irrespective of their p53 status, by 48 hours of treatment. The anti-cancer efficacy of this extract was confirmed in in-vivo studies, as the oral administration of DRE retarded the growth of human colon xenograft models by more than 90%. We found the activation of multiple death pathways in cancer cells by DRE treatment, as revealed by gene expression analyses showing the expression of genes implicated in programmed cell death. Phytochemical analyses of the extract showed complex multi-component composition of the DRE, including some known bioactive phytochemicals such as  $\alpha$ -amyrin,  $\beta$ -amyrin, lupeol and taraxasterol. This suggested that this natural extract could engage and effectively target multiple vulnerabilities of cancer cells. Therefore, DRE could be a non-toxic and effective anti-cancer alternative, instrumental for reducing the occurrence of cancer cells drug-resistance.

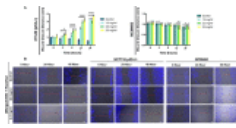
**Keywords:** cancer; gene expression; natural health product; oxidative stress; phytochemical composition.

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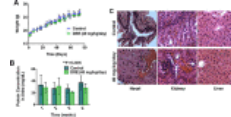
## Figures



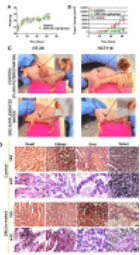
**Figure 1. Dandelion root extract induces apoptosis...**



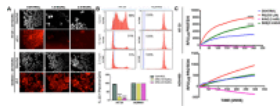
**Figure 2. Dandelion root extract impairs the...**



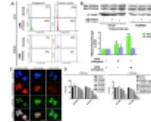
**Figure 3. Dandelion root extract is well...**



**Figure 4. Dandelion root extract halts the...**



**Figure 5. Dandelion root extract targets the...**



**Figure 6. Dandelion root extract triggers the...**

All figures (10)

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