Evaluation of aqueous extracts of Taraxacum officinale on growth and invasion of breast and prostate cancer cells.


Laboratory of Biochemical and Biomedical Research, Department of Chemistry, New Mexico Tech, Socorro, NM 87801, USA.

Abstract
Ethnotraditional use of plant-derived natural products plays a significant role in the discovery and development of potential medicinal agents. Plants of the genus Taraxacum, commonly known as dandelions, have a history of use in Chinese, Arabian and Native American traditional medicine, to treat a variety of diseases including cancer. To date, however, very few studies have been reported on the anti-carcinogenic activity of Taraxacum officinale (TO). In the present study, three aqueous extracts were prepared from the mature leaves, flowers and roots, and investigated on tumor progression related processes such as proliferation and invasion. Our results show that the crude extract of dandelion leaf (DLE) decreased the growth of MCF-7/AZ breast cancer cells in an ERK-dependent manner, whereas the aqueous extracts of dandelion flower (DFE) and root (DRE) had no effect on the growth of either cell line. Furthermore, DRE was found to block invasion of MCF-7/AZ breast cancer cells while DLE blocked the invasion of LNCaP prostate cancer cells, into collagen type I. Inhibition of invasion was further evidenced by decreased phosphorylation levels of FAK and src as well as reduced activities of matrix metalloproteinases, MMP-2 and MMP-9. This study provides new scientific data on TO and suggests that TO extracts or individual components present in the extracts may be of value as novel anti-cancer agents.

PMID: 18425335 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances, Grant Support

LinkOut - more resources