Advances in Cancer Prevention

ISSN: 2472-0429

Case Report Open Access

Anticancer Activities of Some Cameroonian Medicinal Plants

Eliaz I*

Department of Integrative Oncology, Amitabha Medical Clinic and Healing Center, USA

Abstract

Natural products are well recognized as sources for drugs in several human ailments including cancers. Examples of natural pharmaceuticals from plants include vincristine, irinotecan, etoposide and paclitaxel. Despite the discovery of many drugs of natural origin, the search for new anticancer agents is still necessary, in order to increase the range available and to find less toxic and more effective drugs. It has been recommended that samples with pharmacological usage should be taken into account when selecting plants to treat cancer, as several ailments reflect disease states bearing relevance to cancer or cancer-like symptoms. Therefore, we designed the present work to investigate the cytotoxicity of six natural compounds available in our research group, with previously demonstrated pharmacological activities.

Keywords: Staphylococcus; Naphthoquinone; Anthraquinones; Tumour promotion; Cell cycle; Carcinoma cells

Introduction

Compound 1 has been isolated from the roots of Cratoxylum formosum, the leaves of Symphonia globulifera, and the seeds of Vismia laurentii. The only reported natural source of compound 2 is Newbouldia laevis in which it can be isolated from the roots. Compound 3 is a key active ingredient of the ethanol extract from roots of Chinese rhubarb that has been commercialised in China for controlling powdery mildews. Compound 3 was purified from several plants including Rumex japonicus, Radix Boehmeriae, Discocleidion rufescens, Senna septemtrionalis, etc. Compounds 4 and 5 are mostly found in plants of the genus Vismia, whilst compound 6 was reported in Vimia laurentii and Psorospermum species. Compounds previously showed antimicrobial activities against a panel of bacteria and fungi compound exhibited antibacterial activities against Chlorella fusa and Bacillus megaterium, respectively and compound

were investigated. The tested compounds were previously isolated from the Cameroonian medicinal plants Vismia laurentii and Newbouldia laevis. The preliminary cytotoxicity results allowed the selection of xanthone V1 and 2-acetylfuro-1,4-naphthoquinone, which were then tested on a panel of cancer cell lines [14]. The study was also extended to the analysis of cell cycle distribution, apoptosis induction, caspase 3/7 activation and the anti-angiogenic properties of xanthone V1 and 2-acetylfuro-1,4-naphthoquinone. IC50 values around or below 4 µg/ml were obtained on 64.29% and 78.57% of the tested cancer cell lines for xanthone V1 and 2-acetylfuro-1, 4-naphthoquinone, respectively. The most sensitive cell lines were breast MCF-7, cervix HeLa and Caski, leukemia PF-382 and melanoma colo-38. The two compounds showed respectively, 65.8% and 59.6% inhibition of the growth of blood capillaries on the chorioallantoic membrane of quail eggs in the anti-angiogenic assay. Upon treatment with two fold IC50 and after 72 h, the two compounds induced cell cycle arrest in S-phase, and also significant apoptosis in CCRF-CEM leukemia cells. Imaging of the vascularized quail eggs was performed using a digital camera with 3×-magnification objective. For illumination, a mercury-arc-lamp was used which provided a high fraction of blue and UV-light to obtain good contrast values between yolk and vessels. The pictured image section had a size of 5×5 mm. Following image acquisition, quantitative analysis was performed using a software routine which was written in the Image J-macro language, and the total small vessels number was then determined by the system. The percentage inhibition of vascularization was calculated as previously described.

Conclusion

The overall results of the present study provided evidence for the cytotoxicity of compounds xanthone V_1 and 2-acetylfuro-1, 4-aphthoquinone, and bring supportive data for future investigations that will lead to their use in cancer therapy.

Acknowledgement

None

Conflict of Interest

None

References

1. Saarinen R (2006) Weakness of will in the Renaissance and the Reformation. OSO UK : 29-257.
2. Rovner MH (2005) Likely consequences of increased patient choice. Health Expect US 8: 1-3.
3. Marc EL, Chris B, Arul C, David F, Adrian H, et al. (2005) Consensus statement: Expedition Inspiration 2004 Breast Cancer Symposium : Breast Cancer the Development and Validation of New Therapeutics. Breast Cancer Res Treat EU 90: 1-3.
4. Casamayou MH (2001) The politics of breast cancer. GUP US: 1-208.
5. Baralt L, Weitz TA (2012) The Komen planned parenthood controversy: Bringing the politics of breast cancer advocacy to the forefront. WHI EU 22: 509-512.
6. Kline KN (1999) Reading and Reforming Breast Self-Examination Discourse: