

Ex vivo cytotoxic activity of *Eragrostis Tremula* on MCF-7 Human Breast Cancer Cells Via Induction of Apoptosis

Hamidu Ahmed Marafa



Department of Haematology, Usmanu Danfodiyo University, Sokoto, Nigeria

Abstract:

Statement of the Problem: Plants have been used for medical purposes since the beginning of human history and are the basis of modern medicine. Most chemotherapeutic medications for malignant growth treatment are atoms recognized and segregated from plants or their manufactured subordinates. Current helpful methodologies that incorporate medical procedure, chemotherapy, and radiotherapy are related to antagonistic reactions emerging from the absence of particularity for tumors. Here we show that the methanolic root concentrate of *Eragrostis tremula* could be a compelling elective enemy of tumor specialist.

Methodology and Theoretical Orientation: Phytochemical screening of the methanolic roots extract by using different biochemical tests confirmed the presence of Phyto-constituents like Alkaloids, Flavonoids, Glycosides, Phenol, Saponin, Steroids/Terpenoids, Tanin, and Cordial glycoside. Ex vivo cytotoxic activities of extracted root on cancerous and non-cancerous cell lines were evaluated by using (3-(4, 5- dimethyl thiazole2yl)-2,5-diphenyl tetrazolium bromide) MTT-based assay and Cyclophosphamide(CPY) as control.

Findings: The result of IC50 show selective cytotoxicity on tumors cell line MCF7/CPY ($4.68 \pm 0.46 / 0.42 \pm 0.01 \mu\text{g/mL}$). The cytotoxic effect which is dose dependent was found to be significant. The extract failed to show cytotoxicity on HaCaT/CPY ($97.22 \pm 0.45 / 77.3 \pm 0.8 \mu\text{g/mL}$) cells at the concentration that was cytotoxic to tumour cell lines, indicating less cytotoxic effects of the extract against human 'non-cancerous' cells). Furthermore, Hoechst 33342 staining and DNA fragmentation assays revealed hallmark properties of apoptosis such as membrane blebbing, nuclear condensations, and DNA fragmentation.

Conclusion & significance: Conclusion & Significance: The methanolic root extract of *Eragrostis tremula* could be an effective alternative as an anti-tumor agent and the specificity index need to be further evaluated with multiple tumor cell lines to establish its universality. Also to be further evaluated is the mechanisms of cytotoxicity.

Keyword: Ex vivo cytotoxic activity *Eragrostis Tremula* MCF-7 Human Breast cancer



Biography:

Hamidu Ahmed Marafa has completed his MSc in the Field Of Biotechnology from the University of Bedfordshire, UK. He has attended National and International Conferences. He is working in a faculty of Medical Laboratory Sciences in Usmanu Danfodiyo University Sokoto, Nigeria and he teaches Haematology /Transfusion, Science/Immunology. An area of research interest includes biomarker studies for hematopoietic malignancies.

Speaker Publications:

1. "Prevalence of high titre alpha and beta haemolysins among blood donors in Sokoto, North – Western Nigeria". International journal of Medical Sciences and Health Care, Vol. 1 issue 11 pp1-7
2. "Prevalence of transfusion Transmissible HIV infection among blood Donors in Sokoto, North Western Nigeria". American Journal of Microbial. & Biotechnol. 1(1), 36-42.
3. "Distribution of ABO and Rh blood groups in Gusau metropolis Gusau Nigeria". Research and Reviews: Journal of Medical and Health sciences. ISSN:2319-9865e; ISSN:2322- 0104p.

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