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Anticancer Activity of Alangium Salvifolium on Human Breast Cancer Cell Lines MCF-7, MDA-MB-468

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Abstract and Figures

Alangium salvifolium is a plant that grows in the alangium family. The study's plant species were chosen.The present study was implemented for revealing the anticancer effect of the leaves of methanolic extract of Alangium salvifolium. Phytochemical Screening of A.Salvifolium leaf extract was done which showed the presence of Alkaloids, Flavonoids,Terpenoids.

Human Breast Cancer cell lines MCF-7, MDA-MB-468 cells were grown in RPMI media and the 5-10-methylenetetrahydrofolate reductase (MTHFR) Enzyme inhibitory activity was investigated.

MTHFR is a one-carbon metabolism enzyme that redirects the pool of folate from DNA synthesis and repair to methylation. The enzyme is vital for cellular homeostasis due to its key functions in the one carbon cycle,which include methionine and protein,DNA and RNA synthesis.

Cancer cell lines MCF-7 and MDA-MB-468 treated with Alangium Salvifolium compounds AS1-Deoxytubulosine and AS2 - carboline Hermaline.

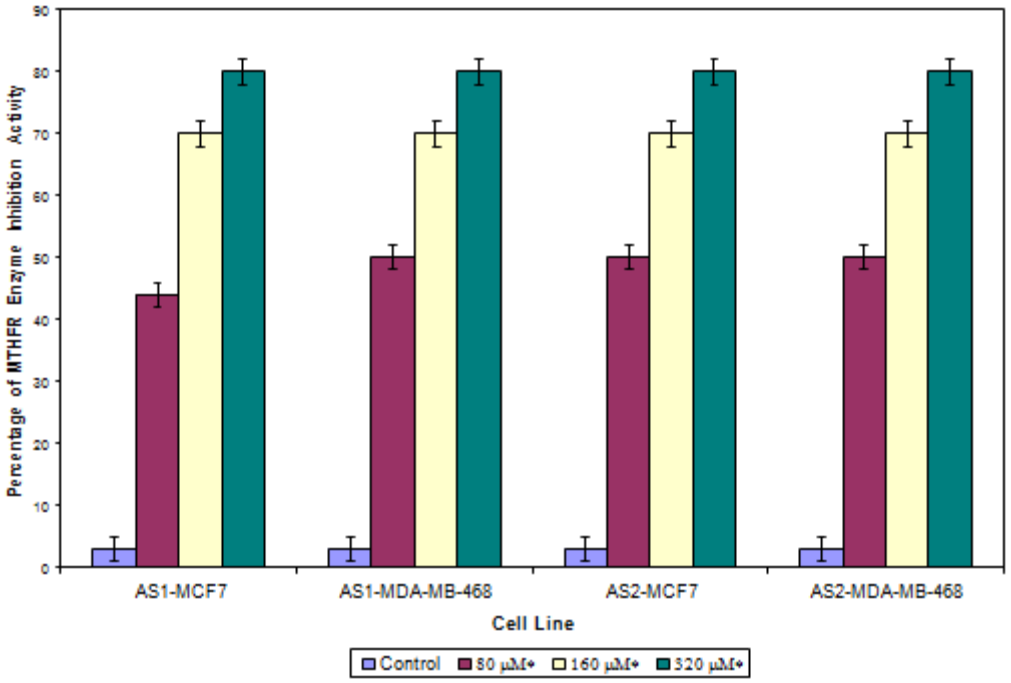
EFFECT OF A. SALVIIFOLIUM COMPOUND AS1 AND AS2 ON INHIBITION OF MTHFR ACTIVITY OF HUMAN BREAST CANCER CELL MCF-7 AND MDA-MB-468

The MTHFR Enzyme inhibitory activity in MCF-7 and MDA-MB-468 cells treated with Alangium Salvifolium showed that at 320M concentration, the Enzyme activity was completely inhibited. In treated cells, about 80% inhibition activity was determined (Table 1.1, Graph 1.1). The current study was in line with a previous study on a plant alkaloid called -carboline benzoquinolidine, which inhibited DTHFR enzyme activity.

Table 1.1: Analysis of variance for methylene tetra hydro folate reductase inhibition activity of A. salvifolium compounds

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
AS1MCF7	Between Groups	12.373	3	4.124	10530.355	.000
	Within Groups	3.133E-03	8	3.917E-04		

	Total	12.376	11			
AS1MDAMB	Between Groups	7.302	3	2.434	1085.765	.000
	Within Groups	1.793E-02	8	2.242E-03		
	Total	7.320	11			
AS2MCF7	Between Groups	4.205	3	1.402	797.224	.000
	Within Groups	1.407E-02	8	1.758E-03		
	Total	4.219	11			
AS2MDAMB	Between Groups	2.625	3	.875	946.042	.000
	Within Groups	7.400E-03	8	9.250E-04		
	Total	2.633	11			



Graph 1.1: MTHFR enzyme inhibitory activity of *A. salvifolium* compounds treated MCF-7 and MDA-MB-468 cells

The single (*) indicates a very significant difference from the Control (P 0.05), one way ANOVA Dunnett C Test. MTHFR Enzyme Inhibitory Activity of A.Salvifolium compound treated cells compared to that of control. The results are the averages plus standard deviations of three independent experiments that were carried out in triplicate

The goal is to investigate anticancer properties, identify and characterize selected chemical compounds, and test and evaluate the anticancer compounds' effects on cancer cells using cell proliferation inhibition assays and the possibility of developing a novel anticancer drug.
biochemical analysis of *A. salviifolium* compounds AS1 and AS2 MCF7 and MDA- MB-468 has inhibition activity on methylene tetra hydro folate reductatase enzymes. As a result, *A. salviifolium* compounds AS1- Deoxytubulosine and AS2 - carboline Hermaline have the potential to control Breast Cancer Cells.

Keywords: MTHFR Enzyme, MCF-7, MDA-MB-468 cells, RPMI media,alkaloids

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