

Palmatine Modulates Triple Negative Mammary Carcinoma by Regulating the Endogenous Function Of P53, P21 and Mdm2

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Natural products and their bioactive constituents have been investigated for centuries and recognized as a source of valuable therapeutic candidates in the development of contemporary anticancer drugs. Triple negative breast cancers are a subtype of malignant cells formed in the breast tissue caused by uncontrolled and abnormal division. Palmatine, a naturally occurring alkaloid extracted from several medicinal plants in West Africa, has not been extensively investigated for its anti-breast cancer properties especially in triple-negative mammary carcinoma. The 4T1 triple-negative breast cancer cells were transplanted orthotopically into the mammary fat pad of the female balb/c mice. Tumor volume, tumor weight, histology and immunohistochemical analysis were carried out. After 28 days, palmatine (1, 5 and 10 mg/kg) in a dose-dependent manner decreased tumor volume (190.80 ± 19.14 , 25.40 ± 2.82 , 14.20 ± 1.85), reduced tumor weight (1.035 ± 0.04 , 0.8027 ± 0.01 , 0.5090 ± 0.04), inhibited tumor growth (31%, 46%, 66%) and protected against morphological dysplasia induced by the carcinoma (3.50 ± 0.29 , 2.25 ± 0.25 , 1.75 ± 0.25) respectively. Also, palmatine increased the activity of the tumor protein p53, cyclin-dependent kinase inhibitor 1 (p21) and mouse double minute 2 (Mdm2) compared to the untreated carcinoma bearing mice. Overall, palmatine protected against triple negative mammary carcinoma and can be a valuable anticancer compound to treat breast diseases.

Biography

Selase is a Graduate assistant currently pursuing a Doctor of Philosophy degree at Kwame Nkrumah University of Science and Technology. Her primary research interests are in the field of pharmacology, chemotherapy, cell culture and Plant research.