

Abstract

# The Effect of Pycnogenol and Paclitaxel on DNA Damage in Human Breast Cancer Cell Line <sup>†</sup>

Hülya Birinci <sup>1,\*</sup>, Büşra Şen <sup>1</sup>, Suna Saygılı <sup>1</sup>, Ercüment Ölmez <sup>2</sup>, Elgin Türköz Uluer <sup>1</sup> and Kemal Özbilgin <sup>1</sup>

<sup>1</sup> Faculty of Medicine, Department of Histology and Embryology, Celal Bayar University, Manisa 45047, Turkey

<sup>2</sup> Faculty of Medicine, Department of Pharmacology, Celal Bayar University, Manisa 45047, Turkey

\* Correspondence: hulya\_brnc89@hotmail.com; Tel.: +05077220929

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**Abstract:** Breast cancer is one of the most common cancer type that affect the woman in worldwide. Paclitaxel is natural product and anticancer drug especially is used for treatment of ovarian, breast and lung cancer. Paclitaxel kills the cancer cells via DNA damage mechanism. Pycnogenol is a natural product that is extracted from the French maritime pine. It has anti-inflammatory, antioxidant, anti-cancer properties. However its anticancer activity is not known. In this experiment we aimed to study the effect of pycnogenol on breast cancer cell line compared to paclitaxel. We planned 3 experimental groups. One of them is control; the others are pycnogenol and paclitaxel group. The MDA-MB cells that found in pycnogenol group were exposed to 20 µg/mL pycnogenol, the cells in paclitaxel group were exposed to 0.5 µM paclitaxel for 24 h. At the end of the experiment to show the DNA damage, ATM, BRCA1, USP4, 53BC1 immunostainings were done. Control group showed the lowest expression for DNA damage marker, paclitaxel group was the highest expression for all DNA damage markers. The pycnogenol group showed higher expression compared to control group but lower expression from the paclitaxel group. As a result the pycnogenol may be a target product for anticancer treatment via DNA damage mechanism.

**Keywords:** breast cancer; DNA damage; pycnogenol; paclitaxel



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