

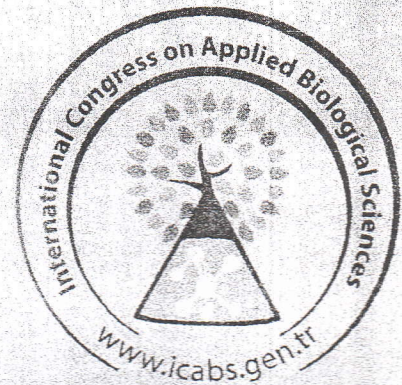


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## Investigation of Effects Combined Treatment with Caffeic Acid Phenethyl Ester and Propranolol on MDA-MB-231 Breast Cancer Cell Line

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### Abstract

Caffeic acid phenethyl ester (CAPE) is one of the active components of propolis with anti-cancer effects. Propranolol has been shown to be a protective effect in the development of cancer due to its anti-angiogenesis and  $\beta$ -adrenergic receptor suppression. Recently, drug combination studies have been widely used in the treatment of many fetal diseases such as cancer. Combined treatment can prefer both benefit and reduce side effects of patient. The aim of this study is to find the migration analysis of MDA-MB-231 breast cancer cell line with combined treatment of CAPE and Propranolol. In this study cell viability was measured by MTT assay. For Wound healing, the MDA-MB-231 cell line was cultured to be  $10^5$  cells in 100  $\mu$ L in a 6-well culture plate. After 90% confluency, we applied 30  $\mu$ M CAPE, 150  $\mu$ M Propranolol and combined treatment at 15  $\mu$ M CAPE and 75  $\mu$ M Propranolol. We observed width of scar 0, 24, 48 and 72 hours with inverted microscope. When the data about wound closure rates were evaluated, it was observed that combined therapy inhibited migration of cancer cells compared to untreated cells and singly therapy.

**Keywords:** Breast Cancer, CAPE, Propranolol, Wound Healing