Abstract: It was aimed to investigate the possible chemopreventive effects of Pomegranate extract (PE) and Tangeretin (TAN), in the rat breast cancer model induced with 7,12-Dimethylbenz[a]anthracene (DMBA), on the selected angiogenesis parameters and NF-κB pathway. 56 Sprague Dawley female rats separated into 8 groups. Group I was control, Group II, III and IV were treated with PE, TAN and PE+TAN respectively. Group V was administered with DMBA, Group VI, VII and VIII also received PE, TAN and PE+TAN. The presence of the breast tumour tissue was demonstrated with histopathological examinations. Plasma VEGF, MMP-9 and NF-κB levels were determined using the ELISA method. As a result of the histopathological evaluations, it was determined that most (90%) of the tumors created were invasive ductal carcinoma. When compared to the controls, increased plasma VEGF, MMP-9 and NF-κB levels were determined in the DMBA group \((p < 0.001; p < 0.05; p < 0.001)\). While quite significant decreases were observed in plasma VEGF and NF-κB levels in Group VI, Group VII and Group VIII compared to the DMBA group \((p < 0.001; p < 0.001)\), decreases in MMP-9 levels were statistically insignificant. It was suggested that PE and TAN have chemopreventive effects on the development of breast cancer by effectively inhibiting both angiogenesis pathways and NF-κB pathway due to many natural bioactive agents they contain. 

Keywords: Breast cancer; DMBA; Pomegranate extract; Tangeretin