OCIMUM GRATISSIMUM (OG) LEAF EXTRACTS: ANTI-PROLIFERATIVE ACTIVITY AND REDUCTION OF LEVELS OF SURVIVAL PROTEINS IN HUMAN PROSTATE CANCER (PC3•AR) CELLS

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Abstract: Prostate cancer affects African American males disproportionately. According to the 2013-2014 American Cancer Society Cancer Facts & Figures for African American males, it is estimated that there will be 35,000 new prostate cancer cases this year. There is no cure for prostate cancer but various treatment options are available. However, a majority of these treatments have undesirable side effects. Therefore it is desirable to find new treatment options that are plant-based. Ocimum gratissimum (Og) is a herb whose aqueous leaf extracts have been shown to inhibit the proliferation of many different cancer cell lines. Therefore, in this study, the modulation of proliferation of PC3•AR cells by Ocimum gratissimum (Og) leaf extract and its partially purified fractions and their ability to reduce the levels of various survival proteins were evaluated. The hypothesis of this study was that Og extract and its partially purified fractions would inhibit the proliferation of PC3•AR cells by reducing the levels of various survival proteins needed by the cells. Using a human prostate cancer (PC3•AR) cell line, a proliferation assay using thymidine incorporation was used to monitor anti-proliferative activity and Western blot analysis was used to evaluate modulation of Androgen Receptor (AR) and Survivin levels upon Og treatment. The various Og leaf fractions P2, P3-2, and PS/PT1 were found to inhibit the proliferation of human prostate cancer (PC3•AR) cells in a dose dependent manner, while the levels of AR and Survivin proteins were reduced in a concentration and time-dependent manner. Ocimum gratissimum and its partially purified fractions kill the cells of interest by decreasing levels of survival proteins needed by the cell. However, it is not yet completely clear if AR and Survivin are the only proteins involved in the inhibition of proliferation of PC3•AR cells upon Og treatment.

Key words: Ocimum gratissimum (Og), prostate cancer (PC3•AR) cells, Androgen Receptor (AR) and Survivin

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