

Antioxidant Activity of *p*-Hydroxy-*m*-Methoxy-Chalcone and Its Combination with Doxorubicin

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ABSTRACT

Chalcone has a variety of interesting biological activities, including as an antioxidant and anticancer. Antioxidants are molecules that can retard or prevent the oxidation process or inhibit the formation of free radicals. *p*-Hydroxy-*m*-Methoxy-Chalcone (*pHmMC*) is a chalcone derivative which has anticancer activity both in used single and in combination treatment with Doxorubicin (DOX) in T47D and MCF-7 breast cancer. DOX is one of the chemotherapy agents widely used in cancer treatment but the medicine has side effects of cardiotoxicity. This effect is generally associated with free radical formation. This study aims to find out the activity of *pHmMC* as an antioxidant both in used single and in combination treatment with DOX by in vitro and to explore the potential of *pHmMC* as an antioxidant by in silico. Activity tests as antioxidants were measured by Chow method using DPPH (1,1-diphenyl-2-picrylhydrazyl). Butyl Hydroxy Toluene (BHT) and ascorbic acid (Vitamin C) were used as a positive control. Antioxidant activity was calculated as the value of 50% Inhibition Concentration (IC_{50}). In silico study was carried out by molecular docking using PLANTS (Protein Ligand ANT System) software. The results of the antioxidant activity test showed that the IC_{50} values of BHT, Vitamin C, *pHmMC* and DOX were 7, 3, 12 and 30 microgram/mL respectively

Kata Kunci: *p*-Hydroxy-*m*-Methoxy-Chalcone (*pHmMC*), Doxorubicin and antioxidant activity