The Potential Biologically Active Epoxides Drived from Safranal via thermal and photo epoxidation reactions

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ABSTRACT

Photo epoxidation and thermal reactions of safranal can be a significant tool for the design of drugs to act as anticancer agents and potent chemoprevention. Safranal that is extracted from *Crocus sativus L* was subjected to oxidation reactions either thermally with using m-chloroperbenzoic acid or photochemically with hydrogen peroxide. Photo chemically and thermally oxidation reaction gave the corresponding monoepoxy together with diepoxy derivatives. Safranal can act as antioxidants,which could be trapped reactive oxygen species (ROS) to give the intermediated epoxide derivatives, which could be alkylated DNA, proteins and other biological species. The primary tested of epoxide derivatives showed a moderate degree of DNA alkylation. The epoxidation products were tested against bacterium Methicillin resistant *Staphylococcus aureus* (MRSA).

Keywords: Thermal, Photo, Epoxidation, safranal, *m*-chloloperbenzoic acid, monoterpene, *Staphylococcus aureus*

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