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## Synthesis and Characterization of New Selenonitrone Derivative and Its Effect on Breast Cancer Cell Line Viability *in Vitro*

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### Abstract:

New nitron and selenonitrone compounds were synthesized. The condensation method between N-(2-hydroxyethyl) hydroxylamine and substituted carbonyl compounds such as [benzil, 4, 4-dichlorobenzil and 2,2 -dinitrobenzil] afforded a variety of new nitron compounds while the condensation between N-benzylhydroxylamine and substituted selenocarbonyl compounds such as [di(4-fluorobenzoyl) diselenide and (4-chlorobenzoyl selenonitrile)] obtained selenonitrone compounds. The condensation of N-4-chlorophenylhydroxylamine with dibenzoyl diselenide obtained another type of selenonitrone compounds. The structures of the synthesized compounds were assigned based on spectroscopic data (FT-IR, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR, MS and elemental analysis. The result spectra and the result of elemental analysis were verified the expected structure. The results of new selenonitrone derivative (N<sub>1</sub>) effect on the MDA-MB-231 breast cancer cells *in vitro* revealed that is an increase in the proliferation of cells with increased concentrations of selenonitrone at all periods of the times.

**Key words:** Cell viability, MDA-MB-231 breast cancer cell line, Nitrones, Proliferation, Selenocarbonyl, Selenonitrones.

### Introduction:

Nitron has been extensively investigated, because of their utility as versatile synthetic intermediates. Nitrons are very important compounds due to their successful application, they can be used as regulators and modifiers regulators of molecular weight in radical polymerization building blocks (1). The scientists also found that nitron can be used as building blocks in the synthesis of various natural and biologically active

Dibenzoyl diselenide [(PhCOSe)<sub>2</sub>] is an important example of this class showing several pharmacological properties (5-7). The synthesis of dibenzoyl diselenide is being carried out by the alkaline hydrolysis of substituted benzoylselenonitrile (the synthesis of benzoylselenonitrile is being carried out by the reaction between benzoyl chloride and potassium selenonitrile) (8-10). Benzil (PhCO)<sub>2</sub> were prepared