

ABSTRACT

This study included the preparation of new organic compounds for the selenium element. Upon the chloromethylation of salisaldehyde, 4-chloromethyl-2-hydroxybenzaldehyde. was prepared, 4-chloromethyl-2-hydroxybenzaldehyde then reacted with selenium and potassium cyanide in a 1:1:1 ratio using distillate dimethyl sulfoxide as a solvent under nitrogen to obtain a new compounds, 2-hydroxy-4-selenocyanatomethyl benzaldehyde. The compound was diagnosed using IR spectroscopy, ¹HNMR and mass spectrometry techniques. The compound was tested for its antioxidant properties and a high efficiency was obtained.

The reactions of 2-hydroxy-4-selenocyanatomethyl benzaldehyde took place in 3 phases ; reaction with amines, and reaction with halogens and reduction by alcoholic potassium hydroxide to yield the following:

Firstly , upon reacting amines (para toluidine, para amino phenol, 4-nitroaniline, ethylenediamine), new compounds were formed the schiff bases. The new compounds were identified by their high melting points, different colors and by the variation in their reaction time. That was measured using, the (TLC) test. These compounds were characterized using (IR), (¹HNMR) and (MASS). The antioxidants were tested on the two compounds that were produced upon the interaction of 2-hydroxy-4-selenocyanatomethylbenzaldehyde with toluidine and nitroaniline two of the compounds produced following the reaction of 2-hydroxy-4-selenocyanatomethyl benzaldehyde with toluidine and nitroaniline were tested for thire properties resulting in a good antioxidants properties.

Secondly , by reacting the compound with halogens using thionyl chloride and iodine and tetrahydrofuran as a solvent for 24h in a dark place, that were two new organic selenium compounds formed , light sensitive. The compounds were then diagnosed by infrared spectra (IR), magnetic resonance spectrometry (1HNMR) and mass spectrometry (MASS).

Finally , the compound was reduced using alcoholic potassium hydroxide that was dissolved in tetrahydrofuran for obtaining a diselenide compound. The new compound produced was red in color and had a high melting point .The compound was then diagnosed using infrared spectra (IR) and mass spectrometry (MASS).