ABSTRACT

Heterocyclic compounds exhibit robust bioactivity and minimize the cytotoxic impact in pharmaceuticals. Oxadiazole containing Propanamides are widely utilizing in medicinal field as anti-cancer, anti-inflammatory, and anti-bacterial agents. Purpose of this research is to formulate oxadiazole containing propanamides and analyze their spectral and biological aspects. *N*-(dimethylphenyl)-3-((5-(4-nitrobenzyl)-1,3,4-oxadiazol-2-yl)thio)propanmides (**8a** or **8b**) were synthesized by reacting nucleophile; 5-(4-nitrobenzyl)-1,3,4-oxadiazole-2-thiol (**4**) with the electrophile; 3-bromo-*N*-(3,4-dimethylphenyl)propanamide (**7a**) or (**7b**), while maintaining the reaction conditions. The synthesized molecules were characterized by ^{1}H and ^{13}C-NMR. The *carbonic anhydrase* inhibitory activity performed on these molecules, showed IC_{50} values; 20.563 ± 0.893 µM and 23.877 ± 0.635 µM for **8a** and **8b** respectively. The hemolysis percentages were found to be 14.3% for **8a** and 12.9% for **8b**. The results confirmed that both of the synthesized compounds exhibit minimal cytotoxicity and potent therapeutic effects.