

Different compounds containing 1,3,4-oxadiazole and piperidine moieties with pharmacological significance were prepared in the laboratory. Aim of this research was to prepare less toxic, less expensive and effective compounds having targeted pharmaceutical benefits. Two compounds i.e. 5-[1-((4-Bromophenyl)sulfonyl)piperidin-4-yl]-2-[(4-fluorobenzyl)thio]-1,3,4 oxadiazole (**7m**) and 5-[1-((4-Bromophenyl)sulfonyl)piperidin-4-yl]-2-[(2-chlorobenzyl)thio]-1,3,4-oxadiazole (**7n**) were carefully synthesized and tested using different techniques. The structures of the synthesized compounds were elucidated by spectral data analysis using <sup>1</sup>H-NMR and IR. Thin layer chromatography was done in order to confirm the synthesis of the desired compounds. The synthesized derivatives were tested against acetyl cholinesterase enzyme and found to be relatively active. Both of the substances tested had a considerable inhibitory effect on acetyl choline with IC<sub>50</sub> values of 0.630.001M and 0.630.001M for **7m** and **7n** respectively, when compared to eserine, the reference standard (IC<sub>50</sub> = 21.250.15 M). These compounds can be proved very effective in pharmacology if its enzyme inhibitory effects are researched in detail.