Abstract

This thesis describes the synthesis, crystal structure determination, antibacterial, antifungal, Brine-Shrimp Cytotoxocity assay and DPPH antioxidants studies of a range of new *N*- & *O*-Sulphonated derivatives of tyrosine. The targeted compounds were prepared by the reaction of *Tyrosine* with different sulfonyl chlorides via different synthesis schemes from moderate to excellent yields.

The final products were extensively screened to investigate their antibacterial and antifungal potentials. All the derivatives were found to be active against *Staphylococcus aureus, Micrococcus luteus, Escherichia coli, Bacillus broncistepica, Salmonella typhimurium and Enterobacter aerogenes*. These derivative did not show any activity against fungal strains such as *Mucor species, Aspergillus niger, Aspergillus flavus, Aspergillus fumigatus* and *Fusarium solani*.

The targeted compounds were also subjected to Brine-Shrimp cytotoxic studies. Only one compound showed good cytotoxic activity while other derivatives exhibit no activity at all.

Antioxidant potential of these derivatives was investigated by DPPH Assay. All compounds showed excellent antioxidant activities. All of the synthesized compounds were characterized using FTIR and elemental analysis and two of them were also analyzed by single crystal X-ray diffraction technique.