

Synthesis and Characterization of coordination complexes using DMIT derivates and Vanadium salts.

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Over the years there has been an increase in the study of Vanadium complexes as therapeutic agents. This metal is known to have anticancer and antidiabetic properties; however, it is also proven to be antibacterial and function well as co-therapy in combination with oncolytic viruses. Our work is focused on the coordination synthesis of vanadium using derivates of a dithiolene system called 1,3-dithiole-2-thione-4,5-dithiolate (DMIT) for anticancer and antidiabetic therapy purposes. One of the main examples of antidiabetic drugs was bis(ethylmaltolato)oxovanadium(IV) (BEOV) which underwent phase 2 of human clinical trials. These DMIT derivates will have the inclusion of functional groups, such as acetylacetonate (acac), butanedioic acid (succinic acid) or pyrazole, which will be used to coordinate the metal center. The products will be characterized using the methods of X-ray diffraction, Ultraviolet-visible spectroscopy, Infrared spectroscopy, Scanning Electron Microscopy / Energy Dispersive X-Ray Spectroscopy (SEM-EDS) and X-Ray Photoelectron Spectroscopy (XPS). We expect to obtain new vanadium-dithiolene based complex that will be able to have high stability, low toxicity and with anticancer and antidiabetic properties needed for the proposed therapy treatment.