

Metal complexes of 3,4,5-trihydroxybenzoic acid derivative containing aniline moiety: Synthesis, spectral elucidation and bioassays

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Introduction: 3,4,5-trihydroxybenzoic acid is a renowned organic and phenolic acid found extensively throughout the plant kingdom. Its contents are rich in tea, gallnuts, sumac, witch hazel grapes, berries, mango (peels and leaves), banana, vinegar and other fruits as well as in the wine and hot chocolate. It is cytotoxic against cancerous cells devoid of damaging healthy cells; also possess anti-fungal, antibacterial and antiviral properties activity. Also used as an antioxidant, beneficial for human cells to overcome the oxidative damage.

Methodology: Present research work discloses new and novel synthesis of metal complexes (Fe, Cu, Zn, Sb and Sn) of 3,4,5-trihydroxybenzoic acid derivative containing aniline moiety with substitution at C7 position of 3,4,5-trihydroxybenzoic acid in order to enhance its biological activities by coupling therapeutic values of transition metals as well.

Findings: The formation of new functionality was confirmed by FTIR and ¹H NMR spectral analysis. *In vitro* antibacterial activity of the ligand and its metal complexes were screened against various gram positive and gram negative bacterial strains. Antifungal activity of these compounds has been performed by using the agar diffusion method against different fungal strains. The free radical scavenging assay was carried out by using 2, 2-diphenyl-1-picryl-hydrazyl (DPPH). Cytotoxic action of compounds was assessed by utilizing the standard MTT (3-[4, 5-dimethylthiazole-2-yl]-2, 5-diphenyl-tetrazolium bromide) colorimetric assay.

Conclusion: On the basis of these results, synthesized compounds can be studied on incorporating more metals and further biological activities are recommended.

Biography

Khadija Shahid has been serving as an Associate Professor at the Institute of Pharmaceutical Sciences, Riphah International University. She is involved in the synthesis of organometallics and their biological activities. She is an expert at using UV-Vis, FT-IR, NMR, Mass spectrometer and HPLC, GC-MS and Atomic absorption spectrophotometer. She received her PhD degree in chemistry from Quaid-e-Azam University after completing her 3 years research in Organometallics (Inorganic/analytical) at University of Bayreuth (Germany) under a DAAD fellowship and she completed a year of Post-doc studies at the same institute. She has also visited Germany in 2010, 2012, 2013, 2014, 2015, 2016 and 2017 as a Visiting Scientist at the University of Bayreuth, Germany. She has established research collaborations with the scientists at 11 national/international institutions including University of Bayreuth (Germany), University of Oxford. She has published 50+ research papers with 60+ impact factor and citation index of 360 +.

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