NOVEL SERIES OF NANO-SIZED MONO- AND HOMOBI-NUCLEAR METAL COMPLEXES OF SULFATHIAZOLE AZODYE LIGAND: SYNTHESIS, CHARACTERIZATION, DNA-BINDING AFFINITY, AND ANTICANCER ACTIVITY

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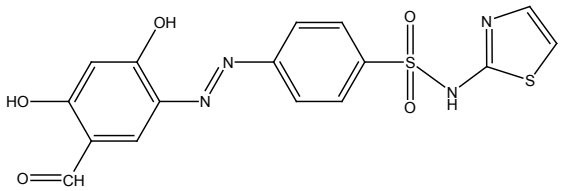
Novel five nanosized mono- and homobi-nuclear complexes of sulfathiazole azodye ligand, H_2L were synthesized aiming to improve new anticancer agents.[1] H_2L was prepared through coupling the diazonium salt of 2-(p-aminobenzenesulfonamido)thiazole with 2,4-dihydroxybenzaldehyde so as to integrate the bio-effectiveness of both azo group and sulfonamide part in the synthesized metal chelates which strongly increase their bio-activities.[2]



Molecular structure of the sulfathiazole azodye ligand, H_2L

H_2L and synthesized Cu, Co, Ni, Mn and Zn complexes were characterized applying diverse analytical and spectral methods. All metal complexes displayed tetrahedral geometry around the metal centers. TEM images confirmed the nanosized range of all complex's particles. UV-Vis spectra and viscosity techniques proved that H_2L and complexes exhibited groove binding mode interactions with DNA. Co(II) and Zn(II) complexes displayed the greatest anticancer activity and are very promising candidate for future uses in cancer therapy.

References
1. Saad, F.A.; Elghalban M.G.; El-Metwaly N.; El-Ghamry H.; Khedr A.M., Appl. Organomet. Chem. 2017, 31, 3721.
2. Saad A.S.; El-Ghamry H.; Kassem M.A.; Khedr A.M. J. Inorg. Organomet. Polym. 2019, https://doi.org/10.1007/s10904-019-01098-z.