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New Schiff base and potent antimalarial, antioxidant, antidiabetic ternary complexes

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Potent antimalarial, antioxidant and antidiabetic ternary complexes have been obtained by RT reaction of Fe(III), Co(II), Ni(II), Cu(II) and Zn(II) chlorides with new Schiff base (E)-2-((benzo[d]thiazol-2-ylimino) methyl)-4-nitrophenol (S₃) and 8-hydroxyquinoline (8-HQ) in equimolar amounts. The SB (S₃) is derived by reacting 2-hydroxy-5-nitrobenzaldehyde with 2-aminobenzothiazole using catalytic glacial acetic acid in an ethanolic medium. The compounds have been structurally analysed using elemental analysis, IR, electronic spectra, TGA-DTA and powder XRD (PXRD) analysis, magnetic and molar conductance measurements. All compounds have been screened for antimicrobial, antidiabetic, antioxidant, antimalarial and anticancer activities, and exhibited future potential for use against these. Molecular docking studies of all the ternary complexes have been conducted against multiple receptors *viz.*, glucose oxidase, endonuclease, D-alanine ligase, oxidoreductase inhibitor, hydrolase and squalene epoxidase. The obtained results have been assessed in terms of binding affinities.

Keywords: Ternary complexes, 2-Hydroxy-5-nitrobenzaldehyde, 2-Aminobenzothiazole, Antimalarial, Antioxidant, Antidiabetic, Molecular docking