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Imine and hydrazone ligands as potential inhibitors of β-amyloid peptides aggregation in the presence of essential metal ions

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As the world population ages, the incidence of neurodegenerative diseases such as Alzheimer's, Parkinson's and many others increases, and one of the main causes is the formation of β-amyloid peptides aggregates. The literature shows that the formation of these aggregates appears to be regulated by essential metal ions such as copper, zinc and iron, which are widely available in the living organism. Imine and hydrazone ligands based of 8-hydroxiquinoline and isatin have effective chelating properties and therefore show great affinity for the metal ions involved in the aggregation of such peptides. Some imine ligands and hydrazones have also been shown to be active in preventing the aggregation of β-amyloid peptides by binding to the essential metal ions copper, zinc and iron. In this project, coordination compounds based on five 8-hydroxiquinoline and isatin ligands coordinated to Zn^{2+} and Cu^{2+} were isolated and are being studied regarding their biological properties. The structures of the complexes were characterized using infrared, UV/Vis and nuclear magnetic resonance spectroscopies, as well as carbon, nitrogen, hydrogen, and metal elemental analyses. In addition, the group intends to use UV/Vis and CD spectroscopies to determine the stability constants of the complexes formed from the ligands and essential metal ions, and to investigate the interactions of these compounds with the β-amyloid peptides, capable of interfere in their aggregation.

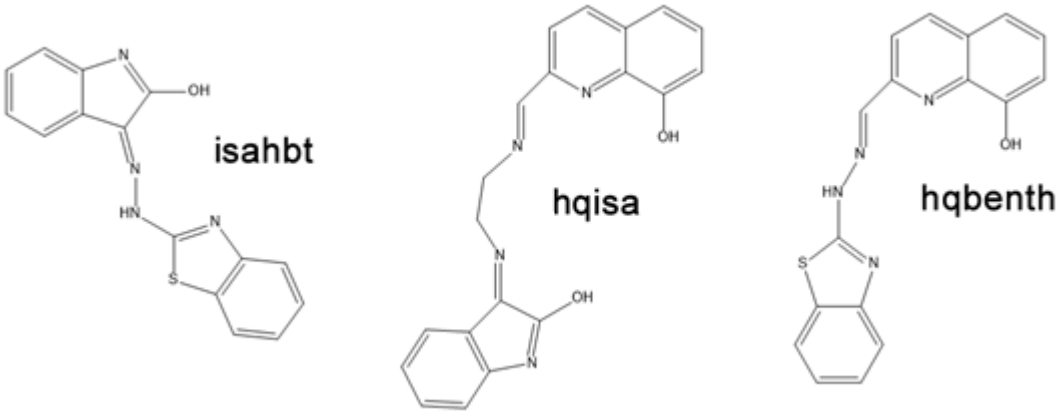

Figure 1 – Three of the ligands prepared from isatin, and 8-hydroxyquinoline: *isahbt* *hqisa* and *hqbenth*.

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References

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