

***In planta* assimilation and characterization of metal nanoparticles in  
*in vitro* shoots of *Withania somnifera* and its therapeutic evaluation  
using Rotenone induced SH-SY5Y cells**

**Thesis submitted in partial fulfillment of the degree of  
Doctor of Philosophy in Biochemistry**

**By**

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## 80\_Recommendations

- Apart from this, the impact of Ag and Pb on withanogenesis pathway shall be studied using multi-omics analysis.
- *W. somnifera* is an important ayurvedic medicinal plant with high metal reduction potential. Thus, its metal reduction potential towards other pharmacologically important metals shall be explored.
- Clinical trials of the *in vitro* developed shoot extracts are required to substantiate the findings of this study.