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**A potent Schiff base colorimetric sensor for Ni<sup>2+</sup> sensing- A greener Approach**

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# A potent Schiff base colorimetric sensor for $\text{Ni}^{2+}$ sensing- A greener Approach

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## Abstract

A novel Schiff base chemosensor derived from 2-amino 4-nitro benzophenone was designed and synthesized in a greener approach. It was prepared by microwave irradiation using few drops of acetic acid. The synthesized chemosensor was characterized by  $^1\text{H}$  NMR and HR. LCMS mass analysis. Its excellent selectivity towards  $\text{Ni}^{2+}$  was examined by both colorimetric and fluorometry sensing techniques. A rapid colour change from yellow to dark brown was observed when  $\text{Ni}^{2+}$  was added. Among the employed metals only  $\text{Ni}^{2+}$  has notable colour change. In the UV-Visible spectrum a new peak apart from the sensor appeared which also confirms the selectivity in sensing. A significant increase in fluorescence was observed in presence of  $\text{Ni}^{2+}$ . Among the various metals  $\text{Zn}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Al}^{3+}$ ,  $\text{Hg}^{2+}$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{As}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Bi}^{2+}$ ,  $\text{SO}_4^{2-}$  investigated no major interference was observed even in higher concentration of analytes. The experimental results are further supported by the DFT studies.

**Keywords:** / Schiff base/ fluorometric sensor / colorimetric sensor /  $\text{Ni}^{2+}$  /DFT studies