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Antibacterial, antifungal, antioxidant, and molecular docking studies of (E)-4-(1-(2-aminophenylimino)ethyl)benzene-1,3-diol

Renuka Sidhanty[a], Soumyadeep Roy Chowdhury[b], Alekha Kumar Sutar*[c] & Tungabidya Maharana[a]

[a] Department of Chemistry, National Institute of Technology, Raipur, Chhattisgarh 492 010, Madhya Pradesh, India

[b] Centre for Metareceptome Research, Graduate School of Pharmaceutical Sciences, Chung-Ang University, 84 Heukseok-ro, Dongjak, Seoul-06974, Republic of Korea

[c] Department of Chemistry, Indira Gandhi National Tribal University, Central University, Amarkantak 484 887, Madhya Pradesh, India

E-mail: tmaharana.chy@nitrr.ac.in, dralekhasutar@gmail.com

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The Schiff base, (E)-4-(1-(2-aminophenylimino)ethyl)benzene-1,3-diol (APEB) has been synthesized and characterized by different spectroscopic techniques. The Schiff base, APEB shows antibacterial and antifungal activities against a bacterium (*E. coli*) and a fungus (*C. albicans*) with an IC_{50} value of 0.07 μg/mL and 0.06 μg/mL respectively. Clear zones have not been observed in the case of antibacterial activity but are present in the case of antifungal activity. Additionally, antioxidant potential has been evaluated through DPPH, ABTS, FRAP, CUPRAC, SOARSA, RNOSA and HFRSA, with an IC_{50} values of 187.2 μg/mL, 5.967 ± 0.1625 μg/mL, 0.7404 μg/mL, 2.37 μg/mL, above maximum dose limit *i.e.* higher than 1000 μg/mL, 167.6 μg/mL and 9.934 μg/mL, respectively, indicating antioxidant properties. To elucidate the potential mechanisms underlying these bioactivities, molecular docking studies have been performed against the protein: PDB ID 1AI6 and 5AEZ.

Keywords: Schiff base, *o*-Phenylenediamine, Antimicrobial activity, Antioxidant activity, Molecular docking

In 1864, Hugo Schiff laid the