

## 1,2,3-Triazole based chemosensor for selective sensing of Al<sup>3+</sup> and Fe<sup>2+</sup> ions

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**ABSTRACT** A new bis-(1,2,3-triazoly)pyridine ligand was devised and synthesized from the keto derivative of 1,2,3-triazole and an aromatic aldehyde. The probe was examined for its ion recognition capabilities concerning various cations and anions. An acetonitrile/water mixture solution of the ligand was mixed with perchlorate salts of various metal ions and quaternary ammonium salts of anions at ambient conditions. The ligand displayed a highly selective colorimetric response to Fe<sup>2+</sup> ion and a fluorometric TURN-ON response to only Al<sup>3+</sup> ion. Titration experiment of ligand with Fe<sup>2+</sup> and Al<sup>3+</sup> ions reveals 1:1 ligand:metal complex is formed. Energy optimization studies of the probe and ligand-metal complex showed the feasibility of the formation of complex formation.

**KEY WORDS** Chemo sensor, Colorimetric sensor, Fluorometric sensor, Aluminum(III) sensor, Iron(II) sensor.

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