In recent years, the graphitic carbon nitride (g-C\textsubscript{3}N\textsubscript{4}) has been reported for the fluorescence sensing of several heavy metals and some biological compounds. Compared with other materials, the g-C\textsubscript{3}N\textsubscript{4} possesses various advantages such as low-cost, good biocompatibility, high quantum yield, excellent stability and nontoxicity. In this work, the graphitic carbon nitride was synthesized by thermal treatment of melamine, as nitrogen rich precursor, at 500 °C for 4 h. The g-C\textsubscript{3}N\textsubscript{4} powder was analyzed by X-ray diffraction, diffuse reflectance spectroscopy, FTIR measurements and scanning electron microscopy. The characterization results show a band gap energy estimated at 2.7 eV as well as the typical periodic arrangement of the condensed tris-s-triazine units and the stacking of the conjugated aromatic system of the g-C\textsubscript{3}N\textsubscript{4}, which results in a laminar morphology. The optical properties of the powder without any further preparation were analyzed by means of photoluminescence spectroscopy before and after the contact with a Fe(III) solution, resulting in the detection of metal ions by a decrease of the luminescence intensity to 70 % of the emission band at 370 nm when an excitation wavelength of 250 nm was used. Besides, this material exhibits a good linearity over the concentration range of 10 - 50 ?M.

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