Title:	Luminescent Conjugated Microporous Polymers for Selective Sensing and Ultrafast Detection of Picric Acid
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Abstract:	Luminescent conjugated microporous polymers (CMPs) are one of the important class of porous organic materials that possess a fully π-conjugated skeleton and high surface area and have been utilized as light-emitting materials. In this work, we have designed and developed three luminescent CMPs based on truxene core (Tx-CMPs) via Suzuki–Miyaura cross-coupling reaction in one step. The flexible aryl linker in Tx-CMPs prevents the possibility of aggregation-caused quenching (ACQ) due to π–π stacking of layers and thus offers a high luminescence in the synthesized Tx-CMPs. All Tx-CMPs possess a high BET surface area (SBET = 788–915 m2 g–1) and excellent thermal stability. Utilizing the fluorescent nature and electron-rich property of the Tx-CMPs, we exploited them as a sensor for the selective and sensitive detection of picric acid (PA) among various nitroaromatic explosives. The Stern–Volmer constant (KSV) for PA was estimated as 3.97 × 104, 7.35 × 104, and 2.39 × 104 M–1 for Tx-CMP-1, Tx-CMP-2, and Tx-CMP-3, respectively, indicating that PA can quench the fluorescence intensity of Tx-CMP-2 most efficiently. The detection limits of Tx-CMPs toward PA were found in the nanomolar range.
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