Title:	Advances in MXenes-based optical biosensors: A review
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Abstract:	Over the last decade MXenes have become a hotspot of materials science as one of the newest 2-dimensional (2D) materials. Upon the recognition of their distinctive features (e.g., superior optical characteristics, large surface area, excellent hydrophilicity, biocompatibility, ease of surface functionalization, and high conductivity), their potential in biosensing applications has also gained considerable attention. With versatility in MXene synthesis methods and suitable etching, MXenes can be easily transformed into quantum dots, nanosheets, and MXenes composites. As such, during the last decade optical biosensing platforms-based on MXenes have emerged along with electrochemical sensors and wearable sensors built from MXenes. Herein, we present a broad perspective on the optical properties of MXenes alongside recent findings on their biosensing applications, which are based on different optical transduction principles (e.g., photoluminescence, colorimetry, surface plasmon resonance, surface-enhanced Raman scattering, and electro chemiluminescence). Furthermore, the future perspective and challenges concerning MXenes-based optical sensing techniques are discussed.
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