

Compact optoelectronic flow-through device for fluorometric determination of calcium ions.

Autorzy

Marta Pokrzywnicka
Marta Fiedoruk-Pogrebniak
Robert Koncki

Rok wydania

2012

Czasopismo

Talanta

Numer woluminu

93

Strony

106-110

DOI

10.1016/j.talanta.2012.01.055

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

A low-cost and compact complete fluorometric detector dedicated for measurements under conditions of flow injection analysis has been developed. This device is fabricated by integration of light emitting diodes (LEDs) applied in the double role: as the source of light inducing fluorescence and as the detector of light emitted by excited fluorescent analyte. The device is made of three LEDs only, without any additional fibers, filters and lenses. The LEDs are integrated in the form of flow cell of 0.060 mL internal volume. The developed detector has been tested in simple flow injection manifold dedicated for fluorometric determination of calcium using calcein method. The system offers sensitive and selective determination of calcium at ppm levels with relatively high flow throughput (near 60 injections per hour) and satisfactory reproducibility. The practical utility of developed detector has been confirmed by its application for analysis of mineral waters, medicines as well as physiological fluids.

Słowa kluczowe

Calcium, Calcein, Fluorometry, Light emitting diodes, Flow injection analysis

Adres publiczny

<http://dx.doi.org/10.1016/j.talanta.2012.01.055>

Strona internetowa wydawcy

<http://www.elsevier.com>