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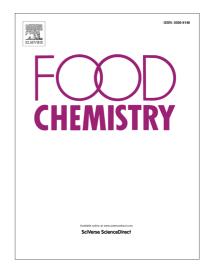
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Application of dahlia-like molybdenum disulfide nanosheets for solid phase extraction of Co(II) in vegetable and water samples

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**Abstract** 

Recently, molybdenum disulfide has been attracted considerable attention due to its unique three

layered structure. Adsorption sites with abundant electron density on edges and surfaces of MoS<sub>2</sub> can

adsorb different metal ions with no need to ligand and functionalization. In this study, dahlia-like

MoS<sub>2</sub> nanosheets were prepared by a simple hydrothermal method and characterized using different

tools such as FESEM, TEM, EDX, XRD, DLS and zeta potential measurements. Then, they were

applied for solid phase extraction of Co(II) as an example of heavy metals. Different factors (the pH,

adsorbent amount, contact time, type of eluent, matrix and reusability) affecting the extraction process

were studied. Under optimum conditions, the relative standard deviation, adsorption capacity and

limit of detection were 2.3 %, 80.0 mg g<sup>-1</sup> and 0.31 µg L<sup>-1</sup>, respectively. The accuracy of the method

was confirmed by analyzing the standard reference material (SRM 1640a) and spiked real samples.

**Keywords**: Dahlia-like adsorbent; Co(II) preconcentration; Flame atomic absorption spectrometry.

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