

Supplementary Materials

Metal Organic Frameworks-Based Dispersive Solid-Phase Microextraction of Carbaryl from Food and Water Prior to Detection by Ultra-Performance Liquid Chromatography-Tandem Mass Spectrometry

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UPLC-TMS, Instrumental operating conditions

The carbaryl standard and samples were analyzed by a Waters ACQUITY ultra-performance liquid chromatography (UPLC) instrument. The dimensions of the C₁₈ column were 100 mm × 2.1 mm i.d. and a 1.7 μm particle size (Waters, Milford, MA, USA). The mobile phase was applied (acetonitrile and water with 0.1% formic acid) with a gradient of 40 to 50% acetonitrile (v v⁻¹) (linear model) starting from 0 to 8 minutes, and the flow rate was 0.45 mL min⁻¹. A Quattro Premier triple quadrupole mass spectrometer (Micromass, Milford, MA, USA) using a Z-spray electrospray ionization (ESI) source was applied for carbaryl detection. The process was applied in the positive mode. The working conditions were as follows: cone voltage, 20 V; capillary voltage, 3 kV; source temperature, 120 °C; desolvation temperature, 300 °C; cone gas flow rate, 60 L h⁻¹; desolvation gas flow rate, 600 L h⁻¹; collision cell entrance potential (CEP), 1 V; collision energy (CE), 20; collision cell exit potential (CXP), 0.5 V; ionspray voltage (IS), 3000 V; curtain gas, nitrogen; temperature, 120°C; ion source gas, nitrogen; CAD gas, argon; quantifier of carbaryl, 330>127; and qualifier of carbaryl, 330>99. Nitrogen (99.99% purity, Peak Scientific, model NM30L LA nitrogen generator, Inchinann, UK) and high-purity argon (99.99%, Specialty Gas Centre, Jeddah, Saudi Arabia) were used as the cone and collision gases, respectively. An Oerlikon rotary pump (model SOGEVAC SV40 BI, France) provided the primary vacuum to the mass spectrometer. The data acquisition and processing were carried out by MassLynx V4.1 software.

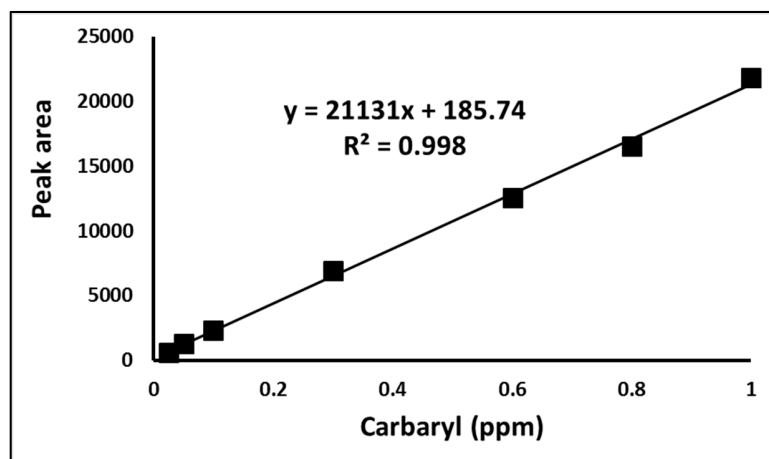


Figure S1: Calibration curve for carbaryl determination by UPLC-TMS

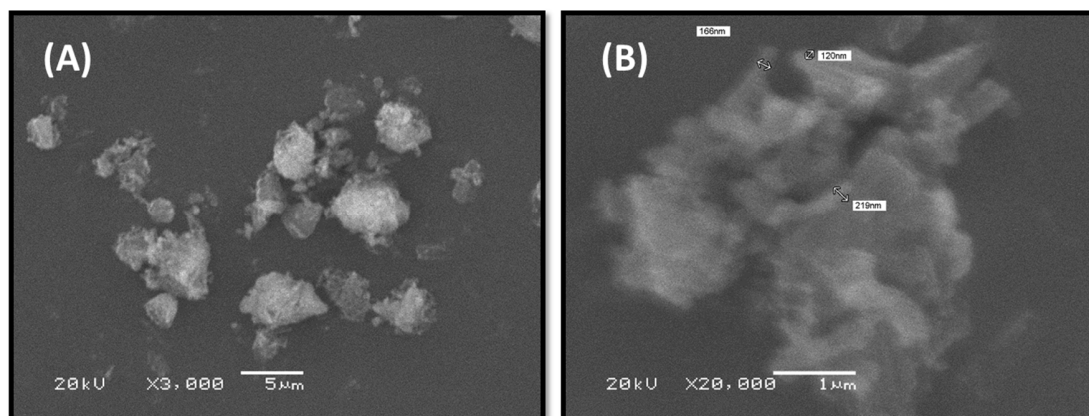


Figure S2: SEM (A, B) of Metal organic frame works (A100-Al based MOFs)

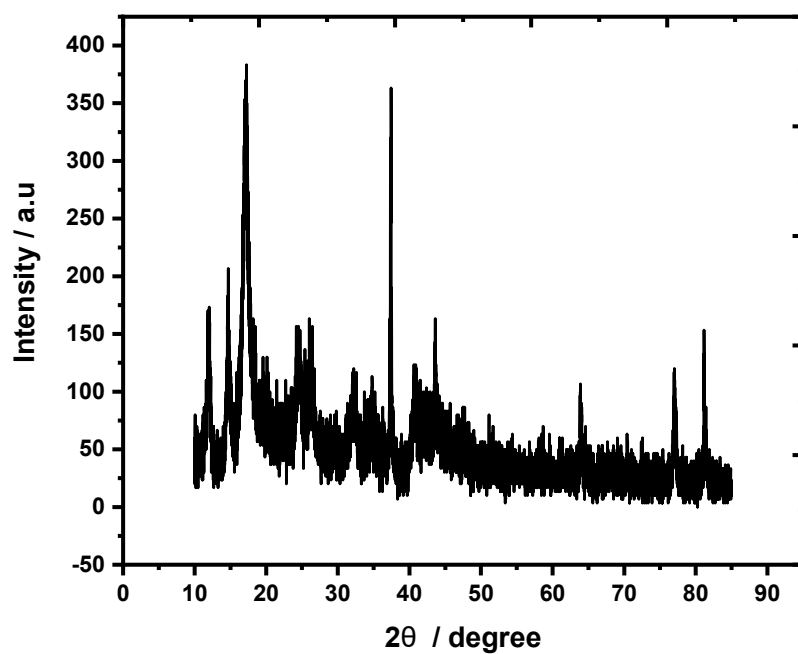


Figure S3: XRD of Metal organic frame works (Al₁₀₀-Al based MOFs)

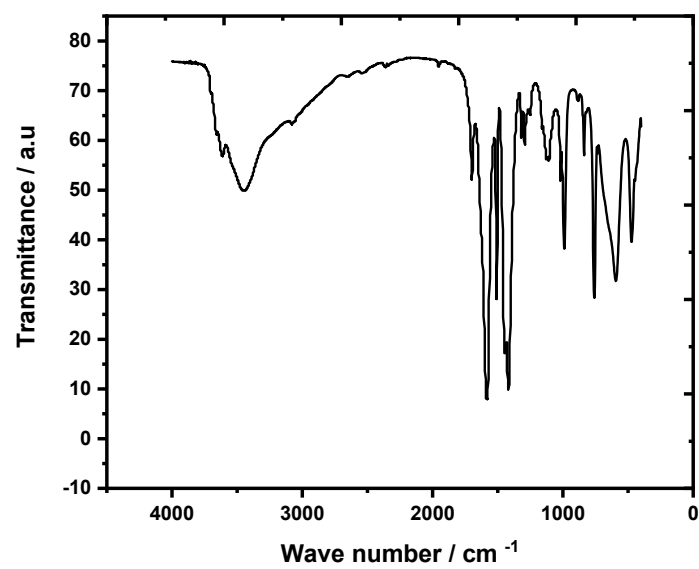


Figure S4: FTIR of Metal organic frame works (Al₁₀₀-Al based MOFs)