Chemical Engineering Journal

ELECTRONIC SUPPLEMENTARY MATERIAL

**Microwave Assisted Synthesis of ZnO Nanoparticles: Effect of Precursors, Temperature, Irradiation Time and Additives on Nano-ZnO Morphology Development.**

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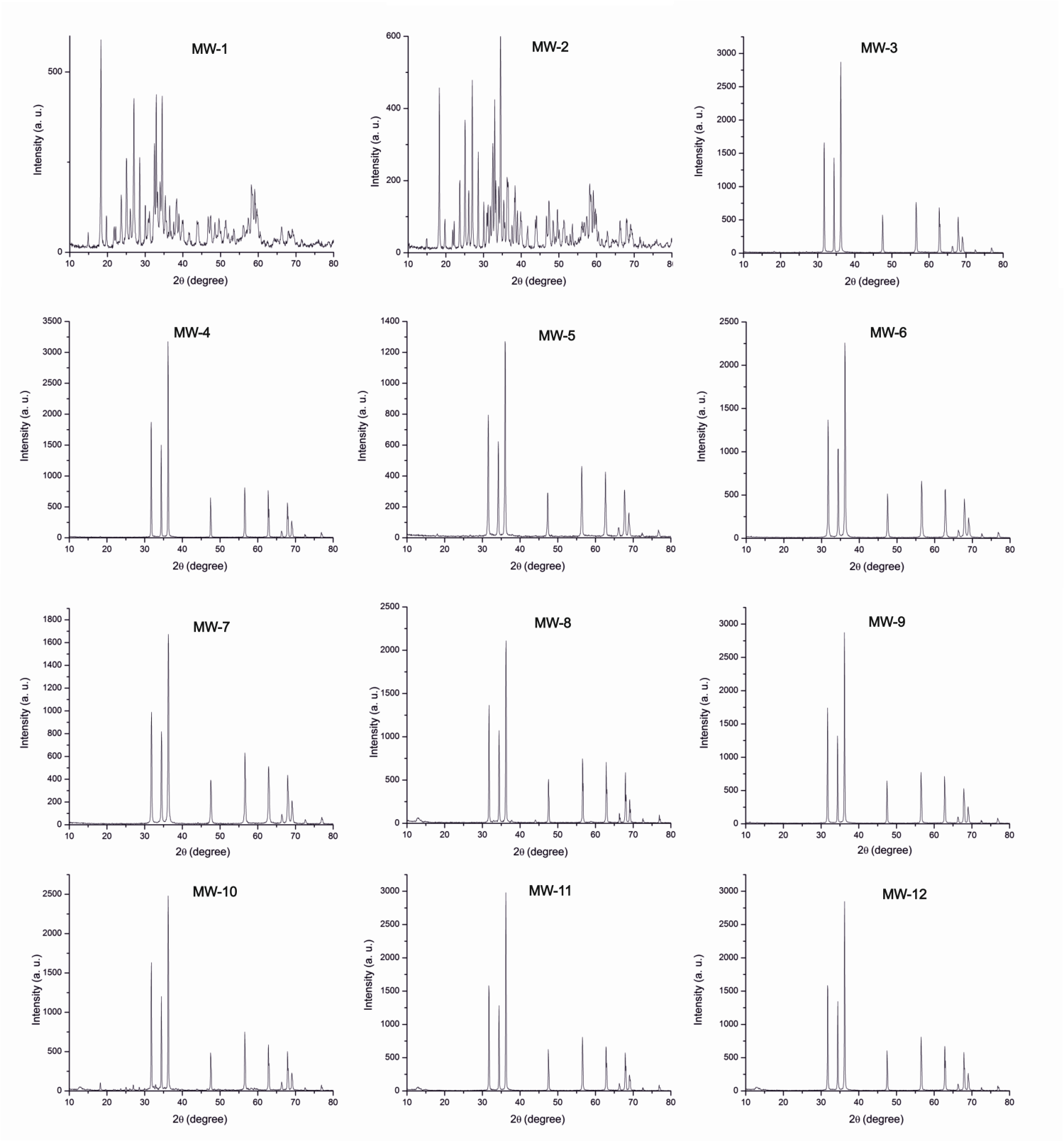
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**Methods**

**Characterization technics**

**Powder X-ray diffraction**

ZnO powders were characterized by X-ray diffraction with a Siemens D500 diffractometer. Diffraction patterns were recorded from 10 to 80° 2θ with a step size of 0.06° at 35 kV and 25 mA.



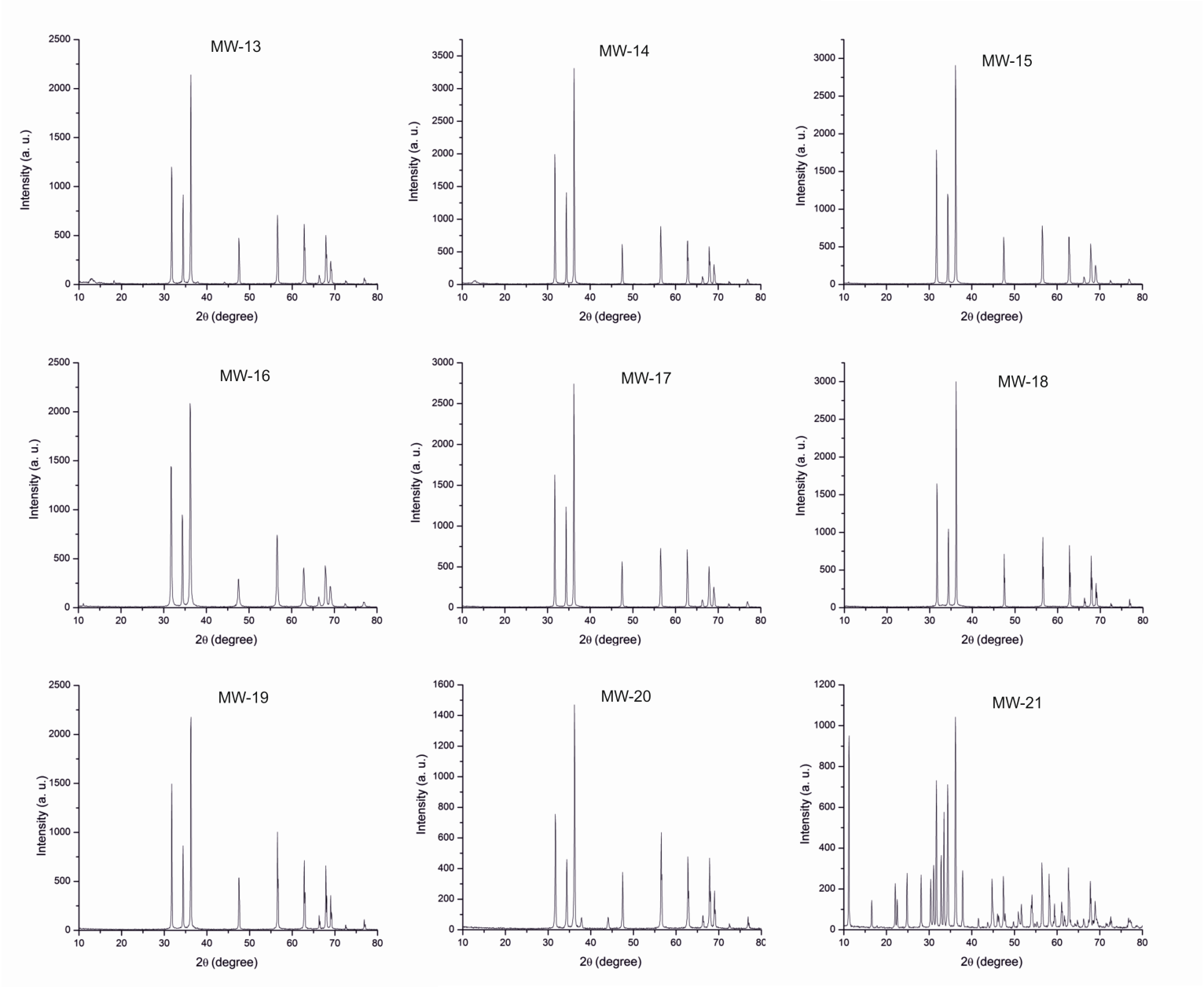
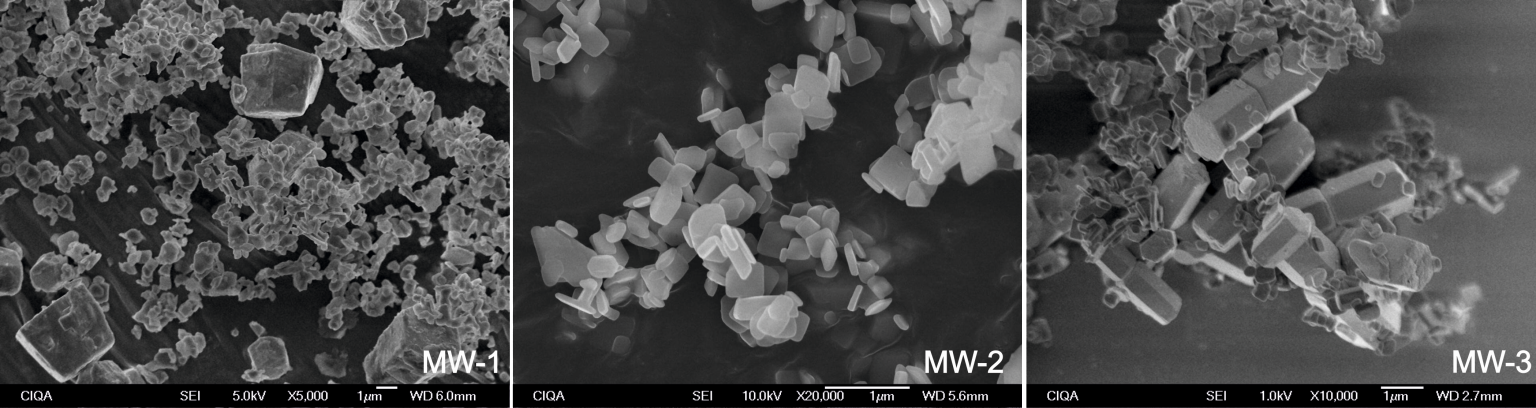


Figure S1. XRD of synthetized ZnO particles using microwave assisted method.

**Field Emission Scanning Electron Microscopy**

An aliquot of solid state material was placed in a carbon label for analysis by field emission scanning electron microscopy (JSM-7401F). Samples were analyzed using a secondary electron detector.



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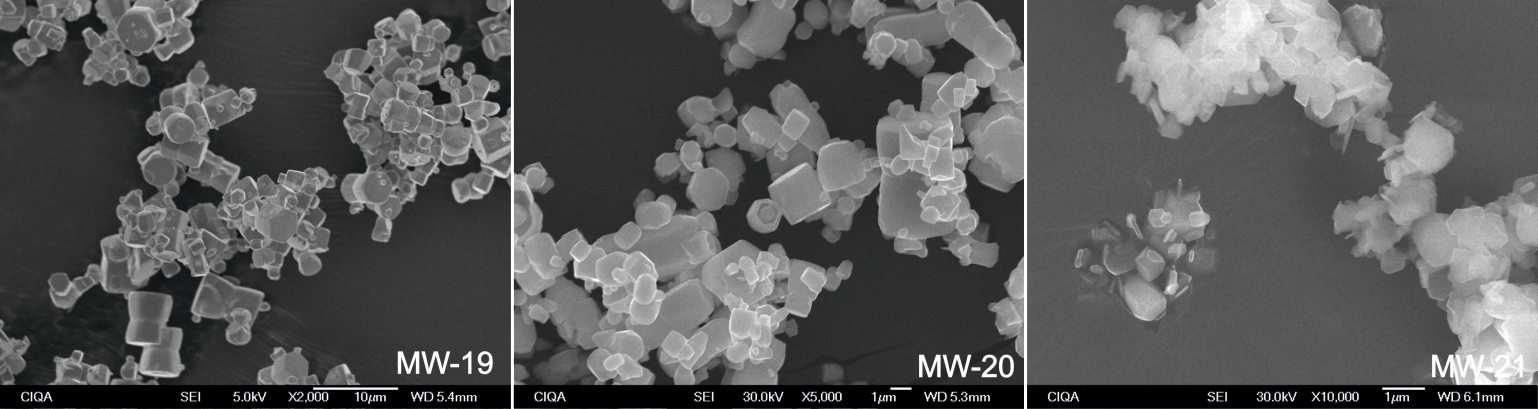
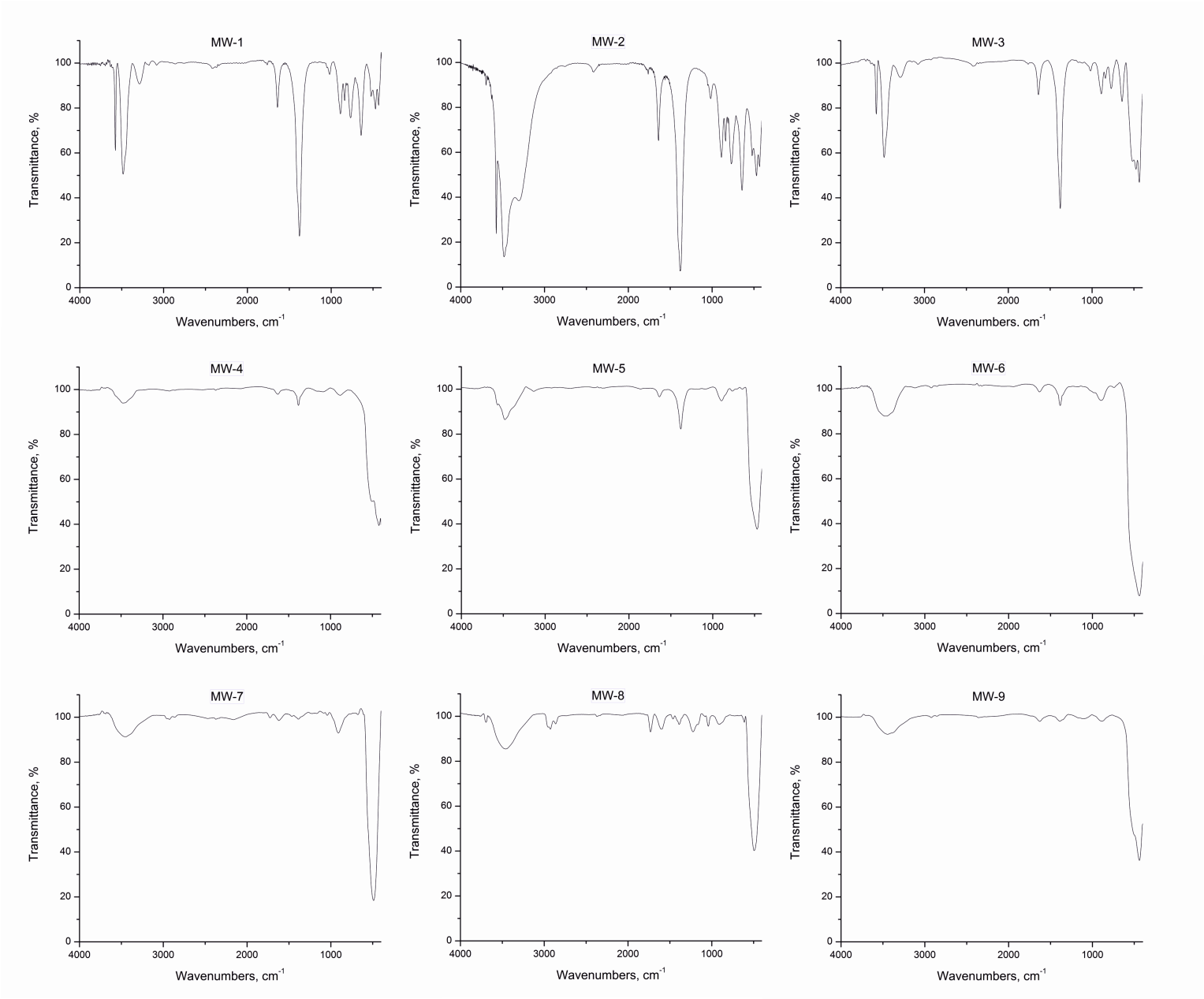
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Figure S2. FE-SEM images of synthetized ZnO particles.

**Infrared Spectrometry**

The infrared spectras of ZnO nanoparticles were taken in a Nicolet spectrophotometer model Nexus 470 Nicolet brand in transmittance mode. The sample preparation was made in tablet way by mixing nano-ZnO and KBr in an agate mortar.



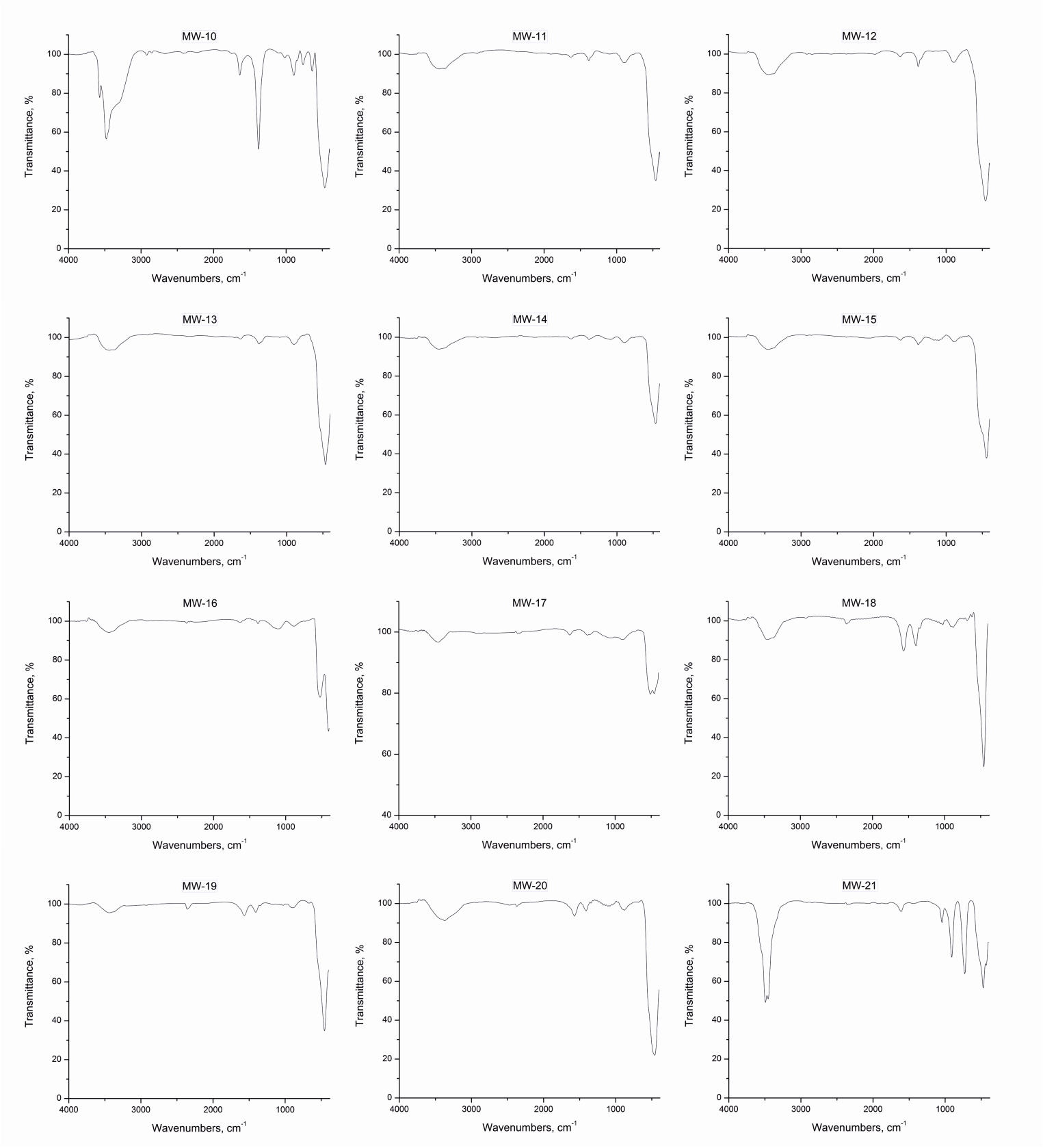
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Figure S3. FTIR spectra of synthetized ZnO particles using microwave assisted method.

**UV-vis Spectrometry**

The solid samples were dispersed in deionized water and ultrasonicated for 10 min. Then UV-vis spectra of colloidal systems were obtained through a Shimadzu double beam spectrophotometer model UV-2401PC.