Co-assembled ZnO-Fe2O3x-CuOx nano-oxide materials for antibacterial protection

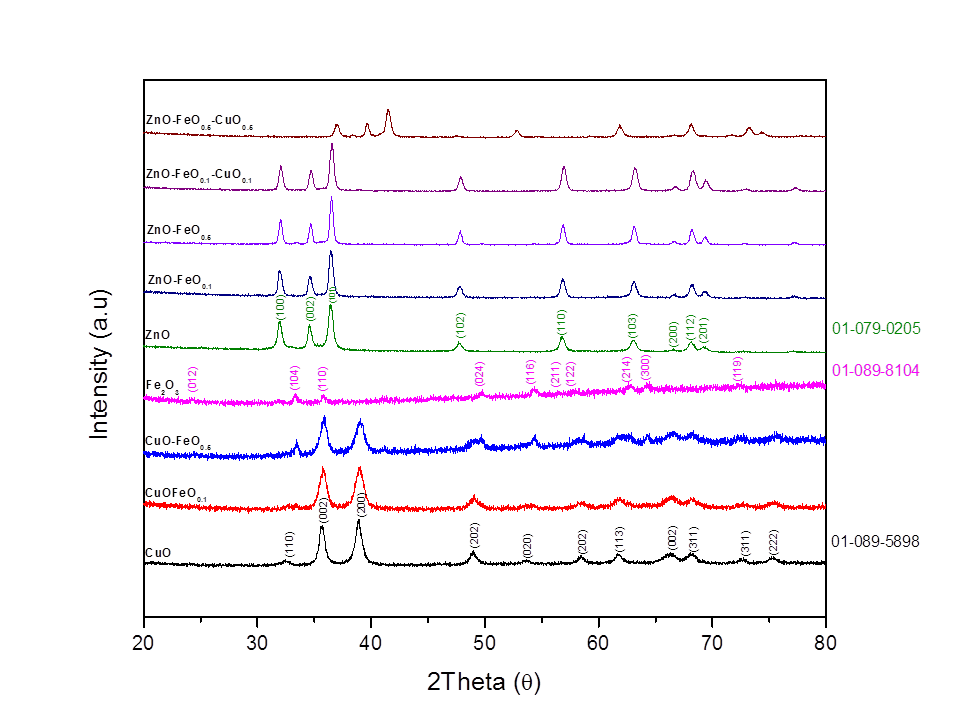
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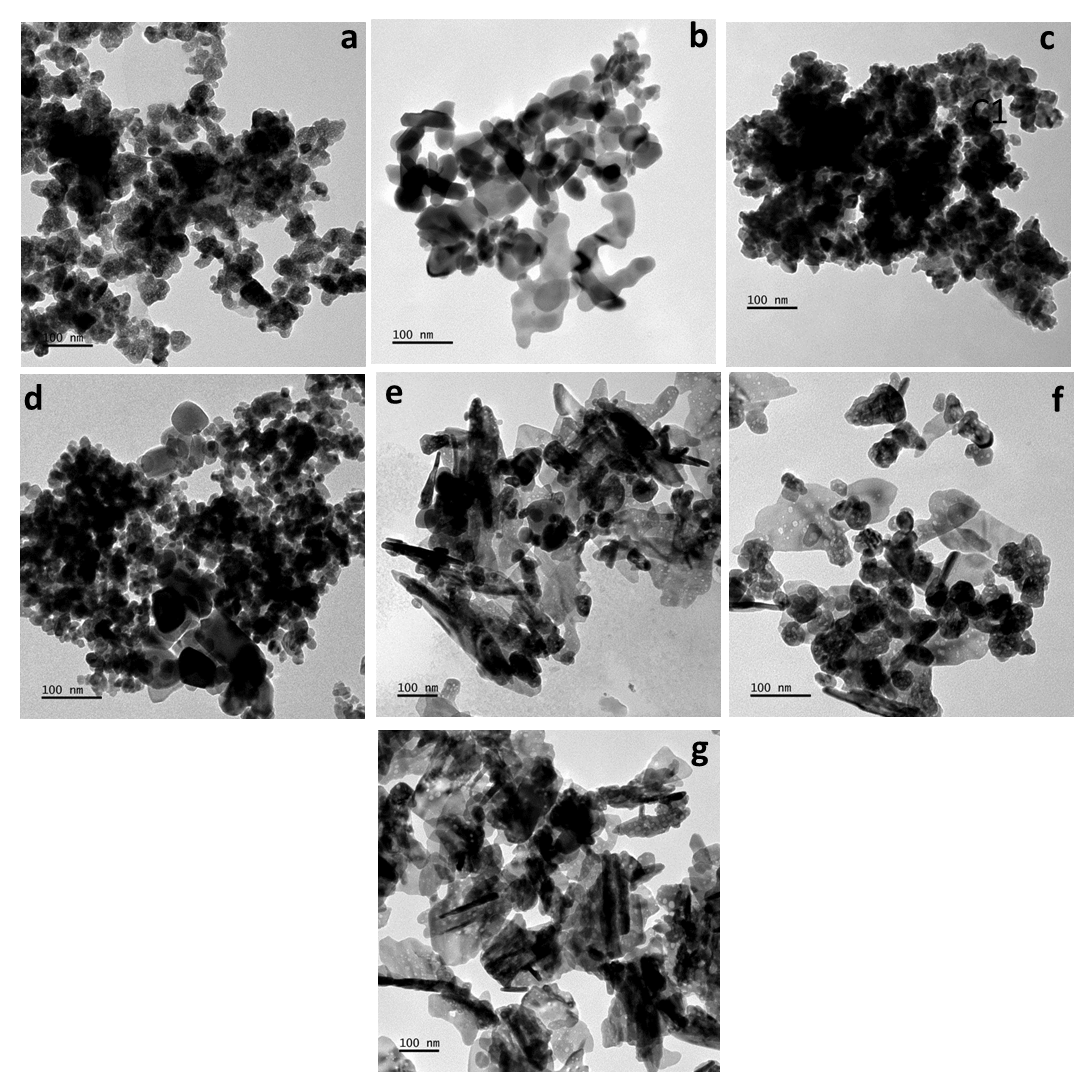
2Department of Microbiology, Faculty of Natural and Agricultural Sciences, North-West University, Mafikeng Campus, Private Bag X2046, Mmabatho, 2735, South Africa

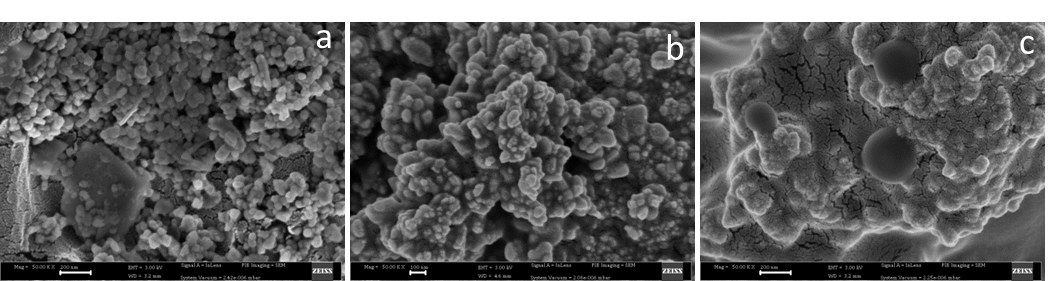
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**Supplemental Materials**

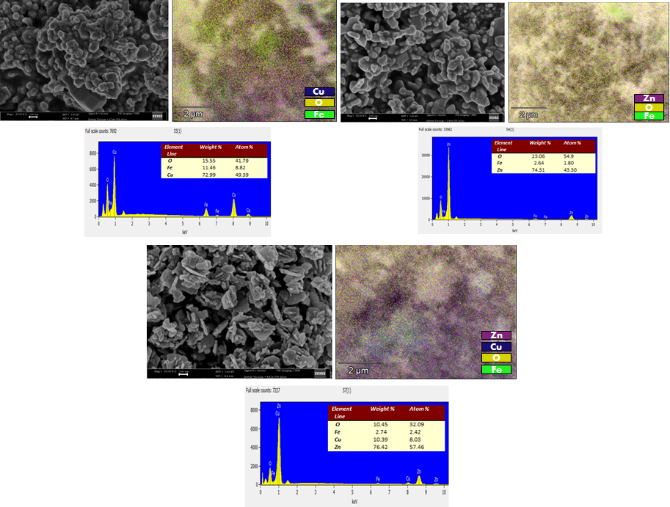
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**Figure S 1:** XRD spectra for MONPs

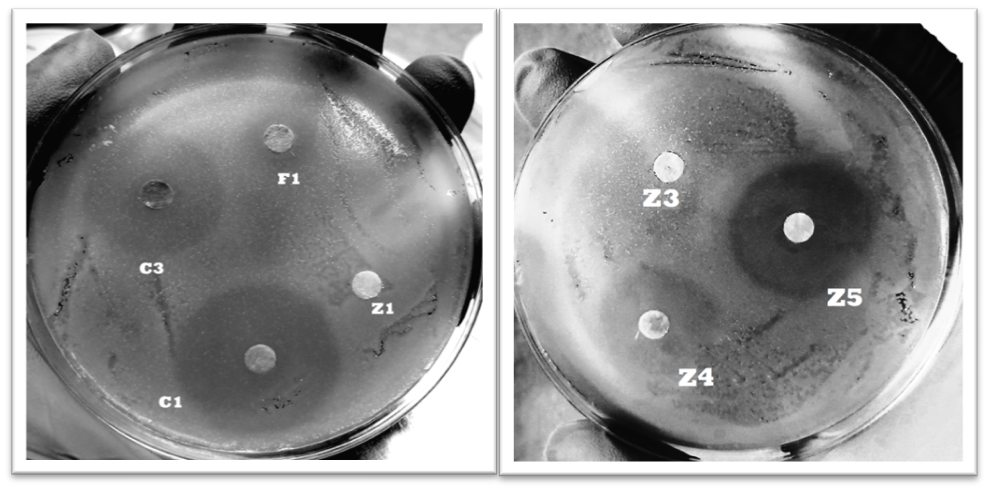
**Figure S 2:** TEM Micrographs of (a) ZnO (b) FeO (c) CuO (d) CuOFeO0.5

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**Figure S 3:** SEM micrographs of (a) ZnO (b) FeO (c) CuO

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**Figure S 4:** SEM micrographs, EDX pattern and mappings of (a) ZnOFeO0.5 CuO0.5 (b) ZnOFeO0.5 (c) CuOFeO0.5

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**Figure S 5:** Antibacterial activity of synthesized MONPs treatments (1mg/mL) on *S.pneumoniae*

**Table S 1**: Antibacterial activity of synthesized MONPs treatments (1 mg/mL) on *S.pneumoniae*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Zone of Inhibition Diameter (mm) ± SD** | | | | | | | |
|  | **ZnO** | **Fe2O3** | **CuO** | **CuOFeO0.5** | **ZnOFeO0.5** | **ZnOFeO0.1CuO0.1** | **ZnOFeO0.5CuO0.5** |
| ***B.cereus*** | - | - | 16 ± 0.3 | 26 ± 0.2 | - | 20 ± 1.4 | 24 ± 0.8 |
| ***S.pneumoniae*** | - | 8 ± 0.67 | 31 ± 0.5 | 25 ± 0.8 | - | 20 ± 0.5 | 28 ± 1.1 |
| ***S.aureus*** | - | - | 27 ± 0.7 | 28 ± 0.6 | - | - | 29 ± 0.5 |