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DEPARTMENT OF HUMANITIES & SCIENCES (PHYSICS)

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Indian SpectroPhysics Association (ISPA)

INTERNATIONAL CONFERENCE ON
**MODERN FUNCTIONAL
MATERIALS**

(ICMFM-2025 - HYBRID MODE)

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Organized by

Functional Materials Research Laboratory (FMRL)



PROCEEDINGS



Sri SAI RAM ENGINEERING COLLEGE

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Assistant Professor, Department of Physics, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Thandalam, Chennai - 602 105

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Microwave-assisted precipitation synthesis of ZnO/MgO nanocomposites

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Abstract

Metal oxide ZnO/MgO nanocomposites were prepared by microwave-assisted precipitation process. The structural, morphological and optical properties of the prepared ZnO/MgO samples are subjected to various characterization studies such as powder XRD, FTIR, SEM, TEM, UV and PL analysis. The powder XRD patterns showed the mixed crystalline phase structure (hexagonal crystal structure of ZnO, JCPDS File No. 80-0075) and the cubic structure of MgO (cubic, JCPDS File No. 89-7746) were developed. The nanostructured ZnO/MgO spheres-like morphology is observed from the SEM and TEM analysis with average crystallite size range of 30-35 nm. The antimicrobial activities of the ZnO/MgO nanocomposites were examined by well-diffusion method using the selected human pathogens. According to the findings, the synthesized ZnO/MgO nanocomposites act as an effective antimicrobial agent.

Keywords: Metal oxide; Nanocomposites; Microwave-assisted precipitation process; Antimicrobial activities