

Preparation of hydrophobic complex oxides with antibacterial, antiviral, and ultraviolet shielding properties

Akira Nakajima

Department of Materials Science and Engineering, School of Materials and Chemical Technology, Tokyo Institute of Technology

Effect of atom substitution on the hydrophobicity, antibacterial and antiviral properties of $\text{La}_2\text{Mo}_2\text{O}_9$ (LMO) was investigated by using Ce (LCMO) with citric acid polymerization method. The sintered bodies showed hydrophobicity by exposure to ambient air. Although antibacterial activity of LCMO was inferior to that of LMO against *Staphylococcus aureus* and *Escherichia coli*, it was sufficient for practical use. On the other hand, LCMO exhibited higher or similar antiviral activity than LMO against *bacteriophage Q β* , and *bacteriophage $\phi 6$* . LCMO absorbed ultraviolet with little photocatalytic activity. This material possesses hydrophobicity, antibacterial, antiviral, and ultraviolet shielding properties, simultaneously. It should be a promising material for the fusion of makeup and medicine.