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SYNTHESIS OF $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ BY MODIFIED SOL-GEL METHOD WITH HYDROTHERMAL

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$\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ powders were synthesized by modified Sol-gel method with Hydrothermal using $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$, $\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$, $\text{Ti}(\text{OC}_3\text{H}_7)_4$ and freshly extracted egg white (ovalbumin) in aqueous medium. The precursor was calcined at 800, 900 and 1000 °C in air for 8 h to obtain nanocrystalline powders of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$. The calcined $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ powders were characterized by XRD, TEM, and EDX. The XRD results indicated that all calcined samples have a typical perovskite $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ structure and a small amount of CaTiO_3 , CuO and TiO_2 . TEM micrographs showed particle size 100 –500 nm and EDX results showed elements of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ powders have calcium, copper, titanium and oxygen.

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