

Method for producing a photocatalyst based on nanosized copper ferrite for water purification from organic dyes involves preparing an aqueous solution of the metal nitrates $\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$ and $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ and a chelating agent, formed under continuous stirring while controlling the temperature of the reaction medium, followed by its dehydration by drying to form a viscous gel, and final initiation of auto-ignition using thermal shock. In this process, citric acid $\text{C}_6\text{H}_8\text{O}_7 \cdot \text{H}_2\text{O}$ is used as a chelating agent in a metal:acid ratio of 1:1.25; mixing is carried out by the dropwise addition of aqueous solutions of metal nitrates to an aqueous solution of citric acid; the temperature of the reaction medium is maintained at 75–85 °C; the pH is adjusted to 7 by the dropwise addition of a 25% aqueous ammonia solution; dehydration is carried out at a temperature of 75–85 °C for 24 hours; a threshold temperature of 250 °C is used to initiate the auto-ignition.