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Abstract	:	Mesoporous electrogenerated zinc nanoparticle catalyst was effectively synthesised, and ZnO surface shape, mechanical strength, and chemical stability were greatly enhanced by microwave radiated modification. The ZnO catalyst was tested to FTIR, which revealed the existence of Zn-O stretching vibrations, indicating that the ZnO catalyst was purely synthesised using a coupled electrochemical microwave-assisted technique. When compared to commercial EGZnO and ZnO catalysts, which give around 73% and 70%, respectively, the mesoporous EGZnO catalyst demonstrated virtually full phenol degradation with roughly 97%. As a result of its superior photocatalytic degradation and ease of operation, this prospective catalyst might be employed realistically in water treatment applications.