

Synthesis of hollow leaf-shaped Fe–NiCo layered double hydroxides for oxygen evolution reaction

Nguyen Quoc Hao, 김진수[†]

경희대학교

(jkim21@khu.ac.kr[†])

The oxygen evolution reaction (OER) at the anode is of paramount importance in electrochemical water splitting. Layered double hydroxides (LDHs) have been reported as a promising class of most effective OER catalysts which are prone to hydrolysis and oxidation under OER conditions. Metal-organic frameworks (MOFs) are a new class of porous materials with high crystallinity and internal surface area. Due to their excellent and tunable textural properties, MOF-derived LDH is gaining increasing attention. Also, design of the morphology and structure of LDH is very important, as it affects electrochemical performance of the product. From previous studies, the hollow nanostructure design derived from MOF demonstrated excellent performance compared to 3D block structures. In this study, we report a novel approach to fabricate hollow and porous Fe–NiCoLDH, which was prepared on leaf-shaped 2D-ZIF (ZIF-L). The product Fe–NiCoLDH was characterized by field emission scanning electron microscope, energy-dispersive X-ray spectroscopy, and Brunauer–Emmett–Teller analysis. Fe–NiCo LDH showed high electrocatalytic performance for OER.