

Sintesis dan karakterisasi metal organic frameworks berbasis logam nikel dengan ligan zat warna perylene untuk aplikasi water splitting =
Synthesis and characterization of metal organic frameworks based on nickel and perylene dyes as water splitting photocatalyst

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Abstrak

ABSTRACT

Nickel-Metal Organic Frameworks (Ni-MOFs-ptc) has been successfully synthesized based on perylene 3,4,9,10-tetracarboxylic dyes as linker organic using solvothermal method. Chromophoric linker in ptc structure are utilized to obtain MOFs with light harvesting properties. In this study, parameters variations in the synthesis of Ni-MOFsptc were carried out through time reaction. The absence of absorption at wave number 1700cm^{-1} as vibration stretching $\nu(\text{C}=\text{O})$ from Ni-MOFs-ptc, indicates that the oxygen atom from ligand can coordinate with the Nickel metal ion. This indicates that Ni-MOFs-ptc has been successfully formed. X-Ray diffraction of Ni-MOFs-ptc exhibits sharp and high intensity peak which indicates high crystallinity Ni-MOFs-ptc. Ni-MOFs-ptc possesses a HOMO-LUMO band gap of 2,41 eV determined by UV-Vis spectroscopy with an absorption edge at 514 nm, which present effective photocatalytic activity for hydrogen production under UV-Visible irradiation.