

Optimization of culture conditions of *Scenedesmus* sp. algae and catalytic performance of NiFe₂O₄@SiO₂/MgO magnetic nano-catalyst for biodiesel production

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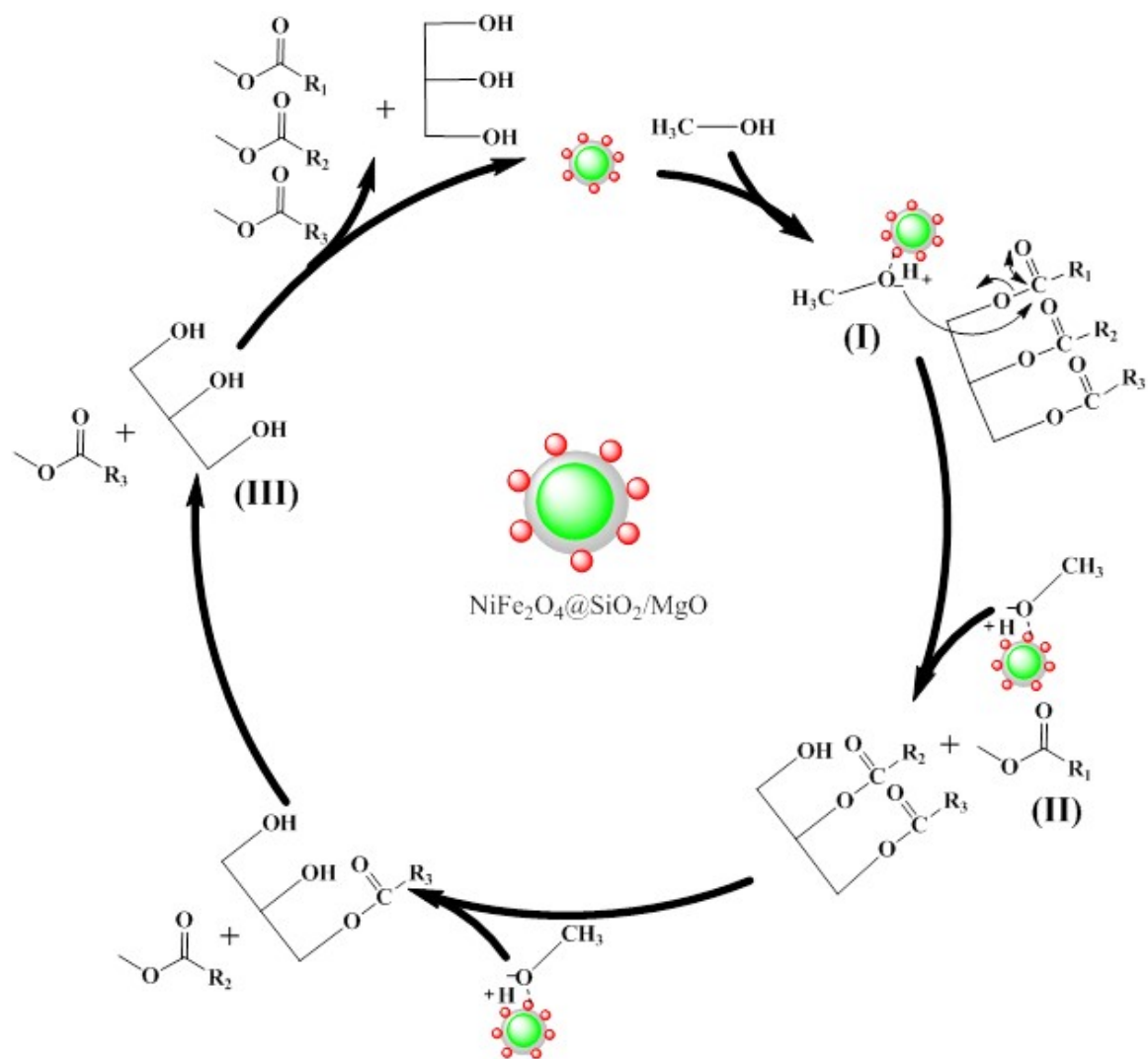


Fig. S1. The proposed mechanism of transesterification reaction using $\text{NiFe}_2\text{O}_4@\text{SiO}_2/\text{MgO}$ nano-catalyst

Table S1. The nanoparticles' peak position, full width at half maximum (β $\frac{1}{2}$), and calculated crystal size of NiFe₂O₄

| | | | | | |
|---|-------|-------|-------|-------|-------|
| Peak position 2θ (°) | 30.47 | 35.81 | 43.43 | 57.47 | 63.11 |
| FWHM β (°) | 0.47 | 0.41 | 0.47 | 0.53 | 0.53 |
| Size (nm) | 18.30 | 21.28 | 19.01 | 17.86 | 18.38 |
| $\lambda = 0.154$ nm, K = 0.94 | | | | | |

Table S2. The nanoparticles' peak position, full width at half maximum (β $^{1/2}$), and calculated crystal size of NiFe₂O₄@SiO₂

| | | | | | |
|---|-------|-------|-------|-------|-------|
| Peak position 2θ (°) | 30.43 | 35.77 | 43.43 | 57.51 | 63.08 |
| FWHM β (°) | 0.35 | 0.35 | 0.29 | 0.29 | 0.47 |
| Size (nm) | 24.58 | 24.92 | 30.81 | 32.65 | 20.72 |
| $\lambda = 0.154$ nm, $K = 0.94$ | | | | | |