

Schedule S1 Comparison of the free ROL with the immobilized enzyme

Biocatalysts	Free ROL	ROL@UIO-66(Adsorption)	ROL@UIO-66/Pro(Adsorption)	ROL@UIO-66/Pro(Covalent binding)
Enzyme activity (U)	0.00277±0.0000289	0.00342±0.000495	0.005323±0.0001856	0.0208±0.000201
Specific activity (U/mg)	0.0373±0.000389	0.00359± 0.00052	0.0102± 0.000354	0.0647±0.000627

Schedule S2 Enzyme stability measures initial enzyme activity

Biocatalysts		Free ROL	ROL@UIO-66(Adsorption)	ROL@UIO-66/Pro(Adsorption)	ROL@UIO-66/Pro(Covalent binding)
Temperature stability					
Specific activity (U/mg)		0.0265±0.00269	0.00244±0.000472	0.00823±0.00081	0.0631±0.00454
pH stability					
Specific activity (U/mg)		0.0198±0.00727	0.00137±0.000593	0.00361±0.000137	0.00415±0.000543
Relative conversion rate					
Specific activity (U/mg)	-		0.00372±0.000393	0.0104±0.000214	0.0665±0.00116