

Supplementary Information

Determination of solubility, stability and degradation kinetics of morin hydrate in physiological solutions

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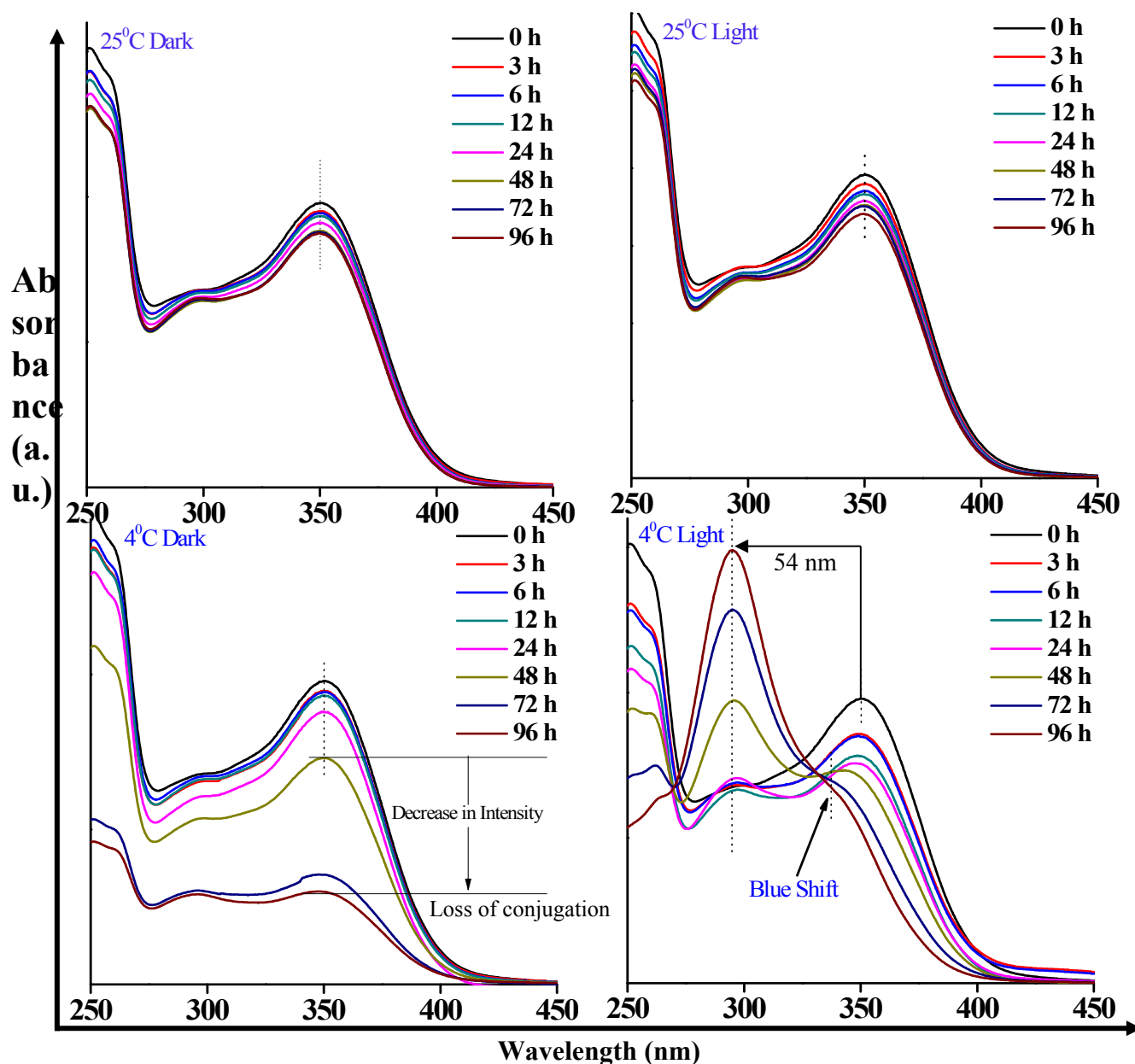


Figure. S1 UV-vis spectra of 25 mM morin hydrate in pH 1.2 (0.1 N HCl).

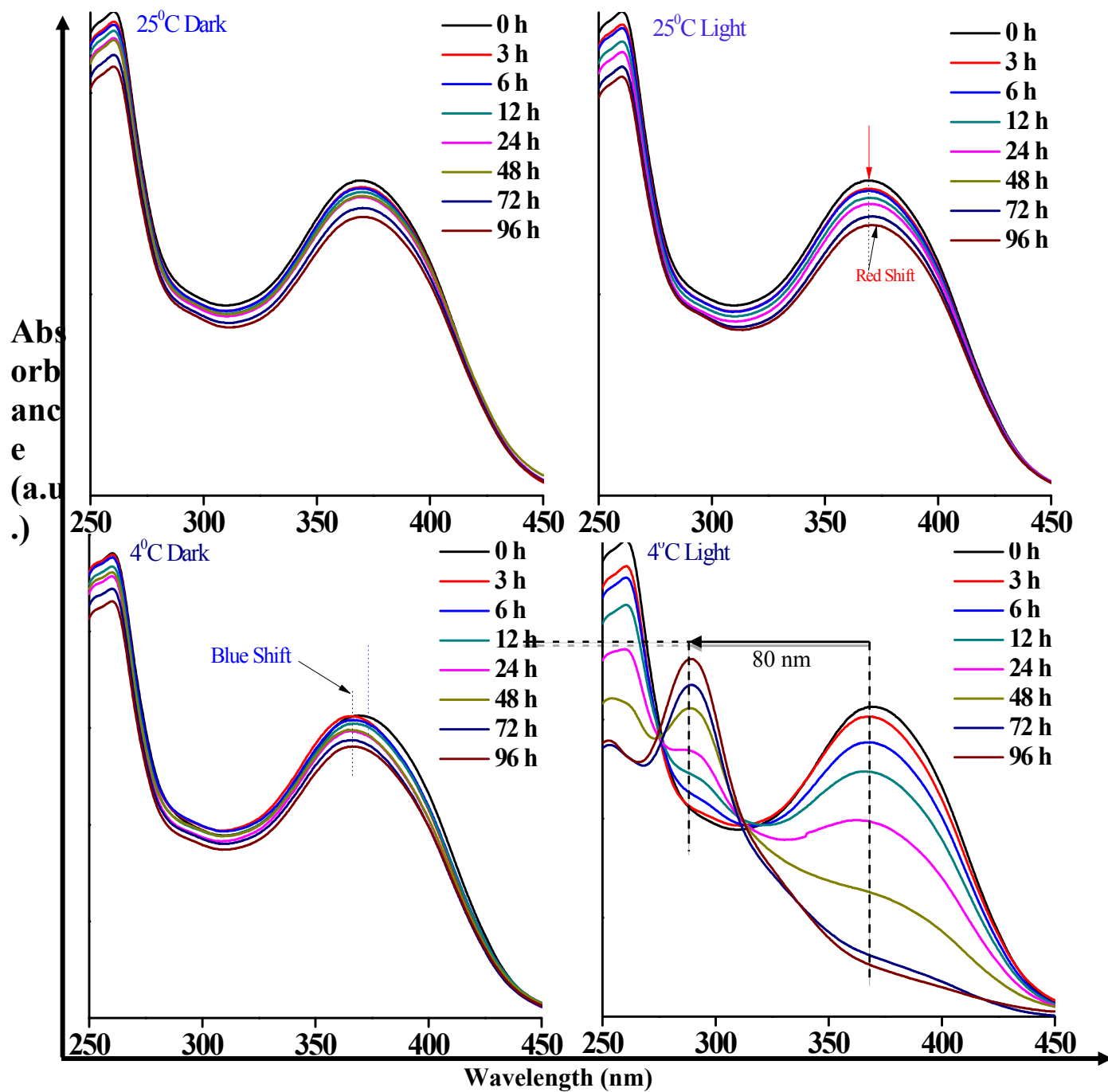


Figure. S2 UV-vis spectra of 25 mM morin hydrate in pH 5.0 (sodium acetate buffer).

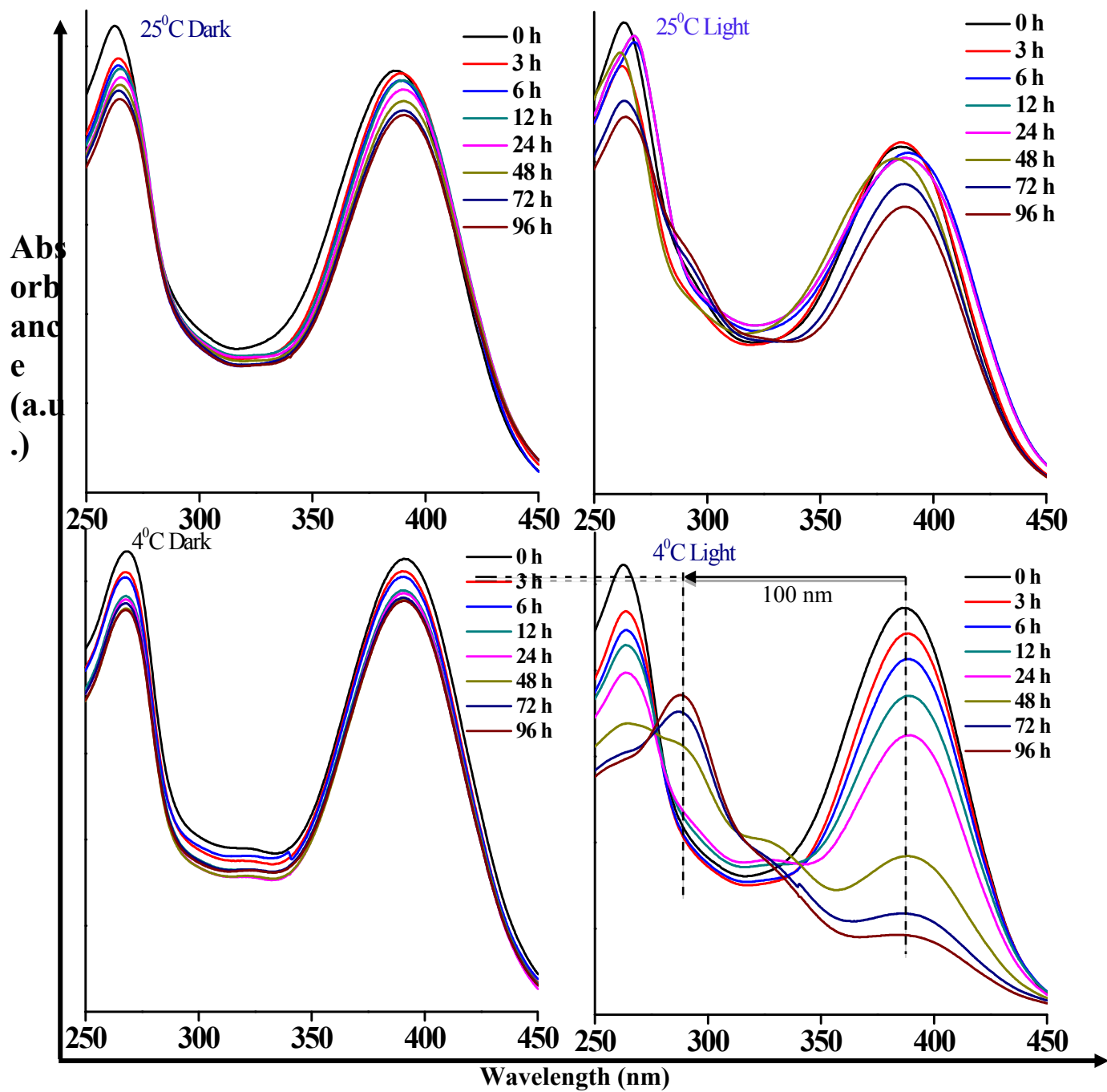


Figure. S3 UV-vis spectra of 25 mM morin hydrate in pH 7.0 (water).

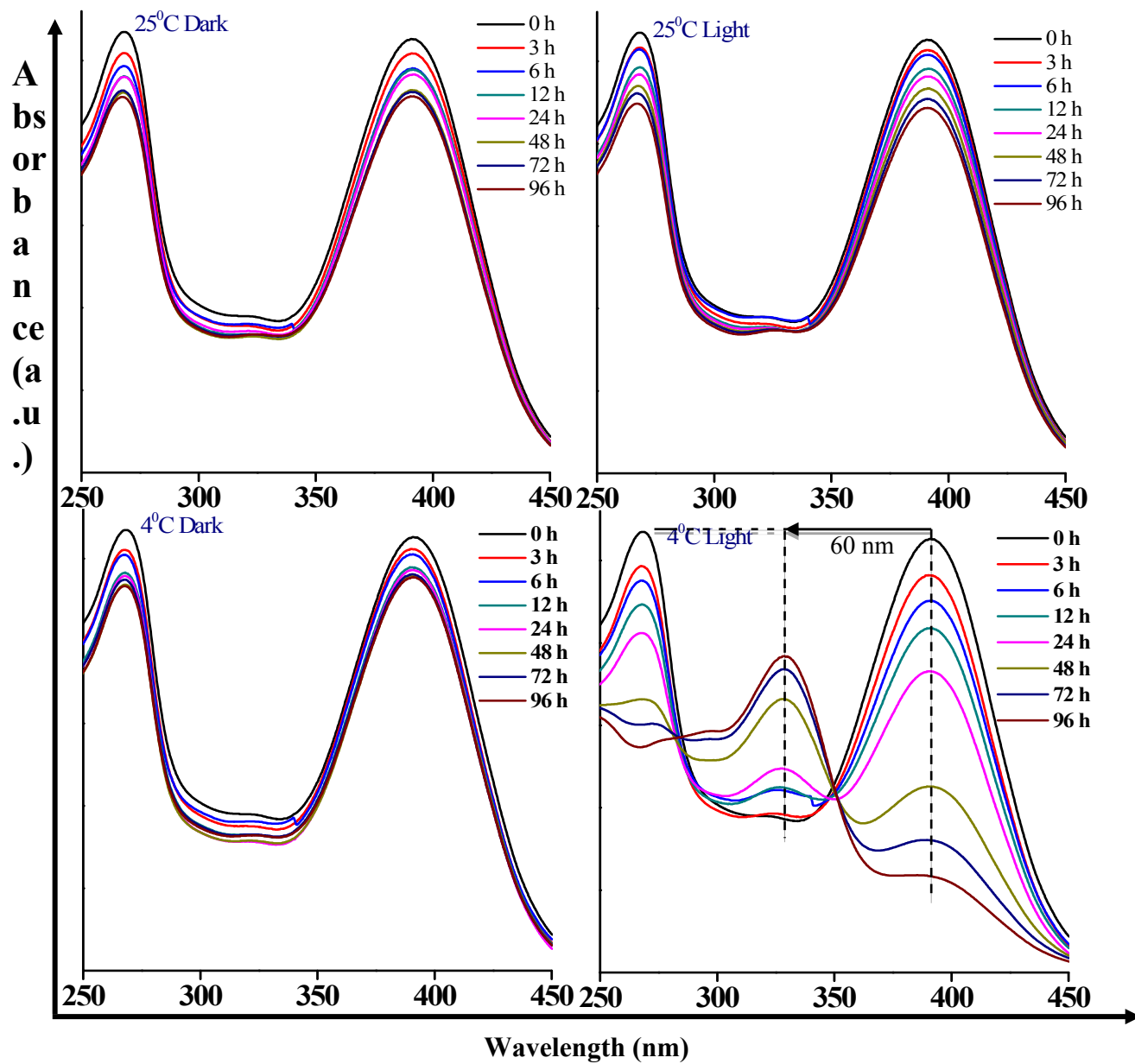


Figure. S4 UV-vis spectra of 25 mM morin hydrate in pH 7.4 (phosphate buffer saline).

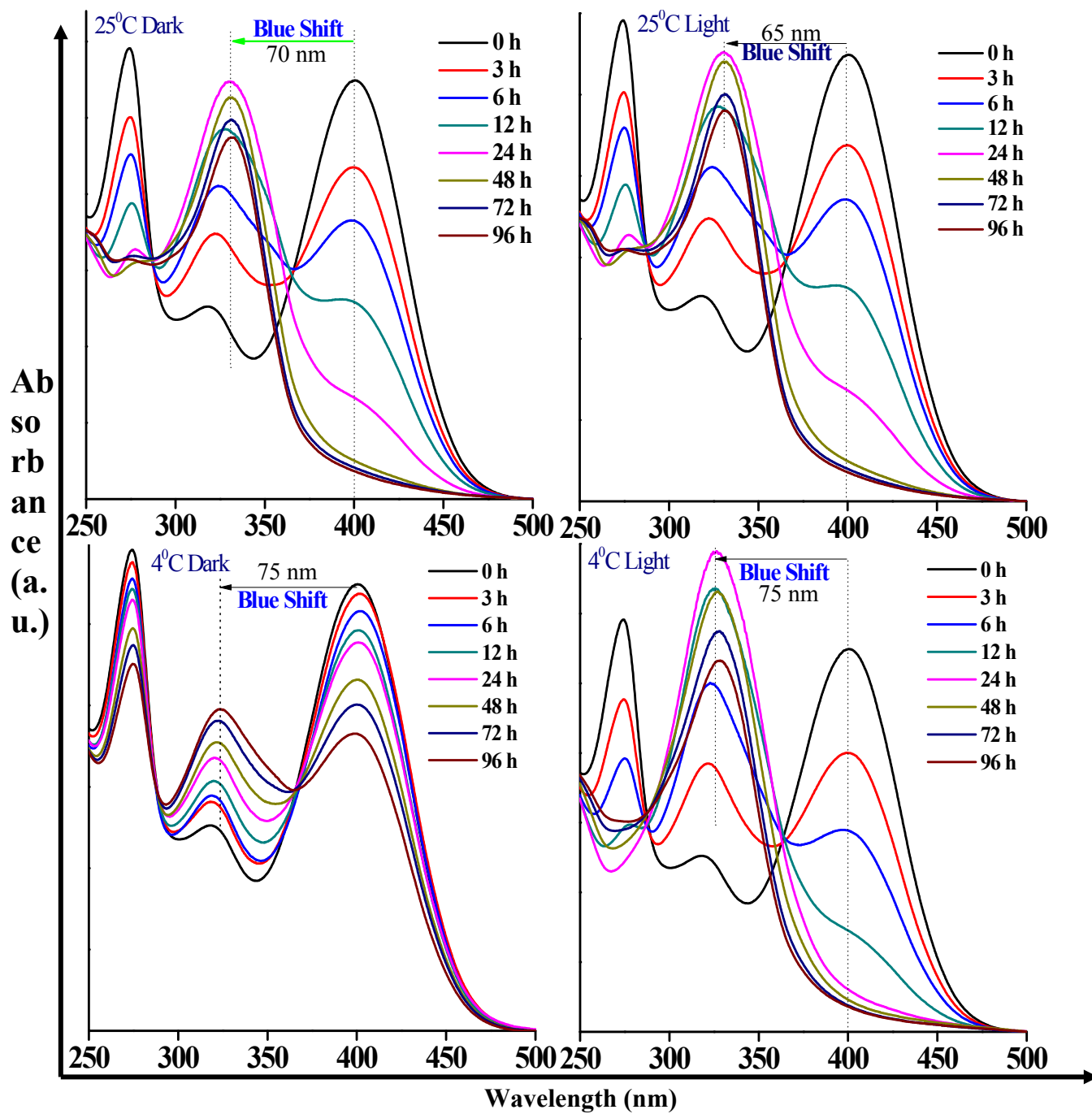


Figure. S5 UV-vis spectra of 25 mM morin hydrate in pH 9.0 tris base buffer.

Table S1: Degradation rate constant (k) of morin hydrate in various pH solvents with different kinetic models.

Storage condition	pH 1.2	pH 5.0	pH 7.0	pH 7.4	pH 9.0
Zero order (k = Mol¹Sec⁻¹)					
RT Light	-0.4516	-0.5811	-0.1372	-0.6488	-3.2770
RT Dark	-0.2477	-0.2041	-0.1896	-0.2837	-2.9725
Freeze Light	-0.8010	-1.6514	-1.2733	-1.1818	-3.4724
Freeze Dark	-0.3830	-0.2296	-0.2518	-0.2907	-0.5412
First order (k = Sec⁻¹)					
RT Light	-0.0021	-0.0028	-0.0006	-0.0032	-0.0383
RT Dark	-0.0011	-0.0009	-0.0008	-0.0013	-0.0252
Freeze Light	-0.0040	-0.0085	-0.0067	-0.0062	-0.0400
Freeze Dark	-0.0018	-0.0010	-0.0011	-0.0013	-0.0025
Second order (k = Mol⁻¹Sec⁻¹)					
RT Light	0.00005	0.00007	0.00001	0.00008	0.00330
RT Dark	0.00003	0.00002	0.00002	0.00003	0.00130
Freeze Light	0.00010	0.00020	0.00020	0.00020	0.00340
Freeze Dark	0.00004	0.00002	0.00003	0.00003	0.00006

Table S2: Regression coefficient value (r²) values of degradation rate with different kinetic models in various pH solvents.

Storage condition	pH 1.2	pH 5.0	pH 7.0	pH 7.4	pH 9.0
Zero order					
RT Light	0.7942	0.8947	0.8327	0.8342	0.8294
RT Dark	0.8306	0.8636	0.9723	0.6496	0.9357
Freeze Light	0.7367	0.9877	0.9550	0.9347	0.8564
Freeze Dark	0.9415	0.9942	0.6279	0.8054	0.8939
First order					
RT Light	0.8124	0.9102	0.8319	0.8580	0.9902
RT Dark	0.8387	0.8703	0.9722	0.6565	0.9977
Freeze Light	0.7681	0.9959	0.974	0.9602	0.9882
Freeze Dark	0.9448	0.9948	0.6337	0.8107	0.9032
Second order					
RT Light	0.8297	0.9237	0.8311	0.8795	0.9599
RT Dark	0.8465	0.8768	0.9721	0.6635	0.9775
Freeze Light	0.7980	0.9955	0.9877	0.9793	0.9694
Freeze Dark	0.9473	0.9953	0.6395	0.8158	0.9122