Supplementary Information

Plant-Inspired Quercetin Thin Films: Universal Coatings and their Postfunctionalization for Non-Biofouling Applications

Soojeong Cho,[a] Hyeon Min Shin,[a,‡] Yeonwoo Jeong[b,‡] Sunhee Kim,[a] Ji Hwan Eom,[a] Byunghyuck Jung,[c,] Sung Min Kang[b,*] and Woo Kyung Cho[a,*]*

[a]Department of Chemistry, Chungnam National University, Daejeon 34134, Korea

[b]Department of Chemistry, Chungbuk National University, Cheongju, Chungbuk 28644, Korea

[c]Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu 42988, Korea

*Corresponding Authors

E-mail: wkcho@cnu.ac.kr, byunghyuck.jung@dgist.ac.kr, smk16@chungbuk.ac.kr

‡These authors equally contributed to this work.

CONTENTS

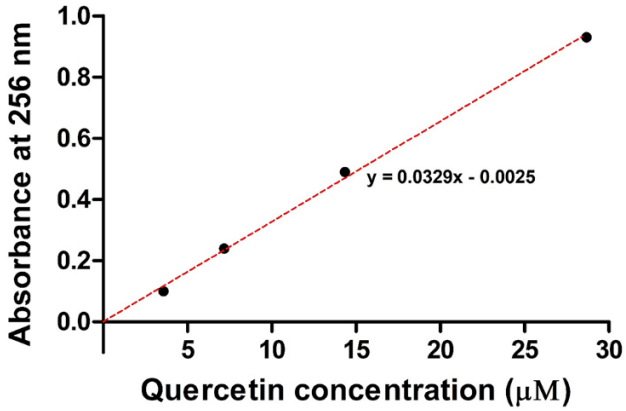

Figure S1. UV−vis calibration curve of quercetin (in ethanol).

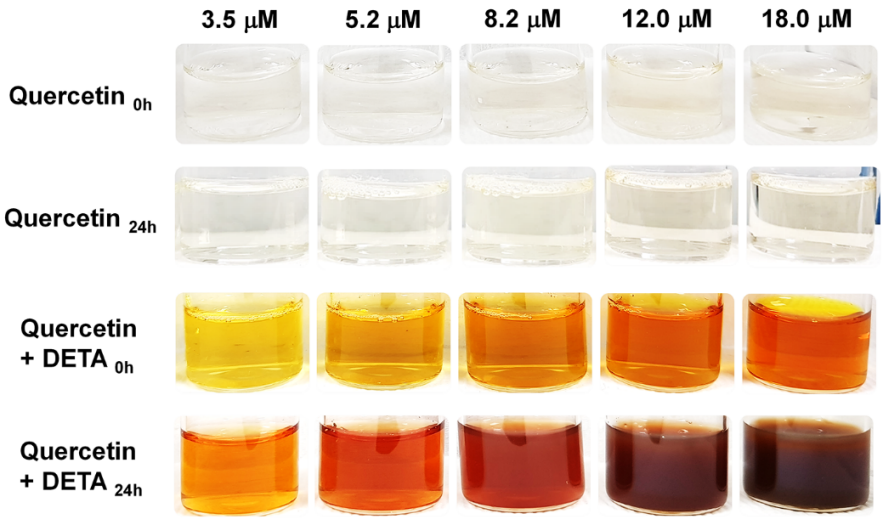

Figure S2. Photographs of the prepared solutions before (0 h) and after (24 h) coating. The concentration of quercetin in each solution is provided at the top.

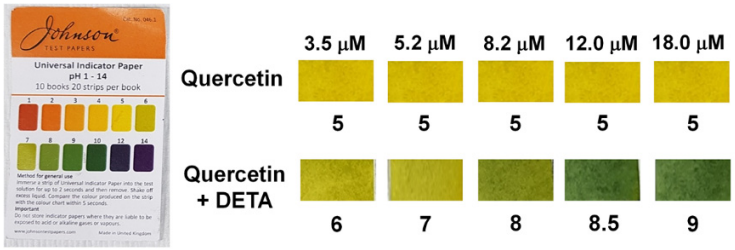

Figure S3. Photographs of pH-indicator papers that were soaked with the prepared coating solutions. The quercetin concentration was varied.

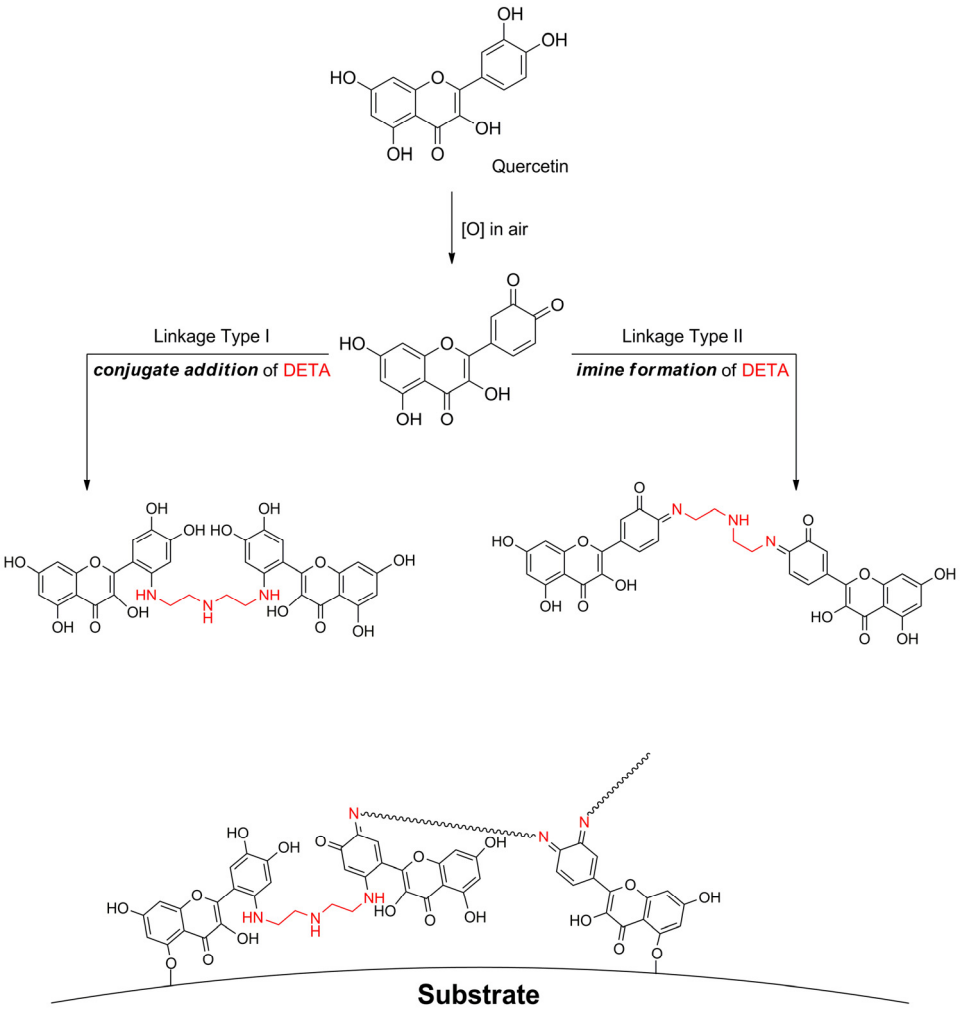

Figure S4. Proposed coating mechanism of quercetin and DETA on solid substrates.

	Atomic composition (%)			
	C 1s	**N 1s**	**O 1s**	**Ti 2p**
Bare	24.27	0.00	50.17	25.56
Quercetin	28.01	1.48	49.53	20.99
Quercetin + DETA	66.79	11.17	22.04	0.00

Table S1. Atomic composition (%) of the bare, quercetin-coated, quercetin/DETA-coated Ti/TiO_2 substrates.

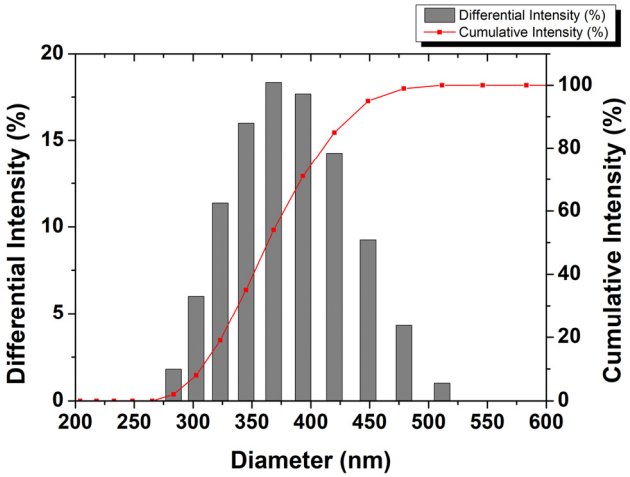

Figure S5. DLS particle size distribution of the coating solution of quercetin and DETA.

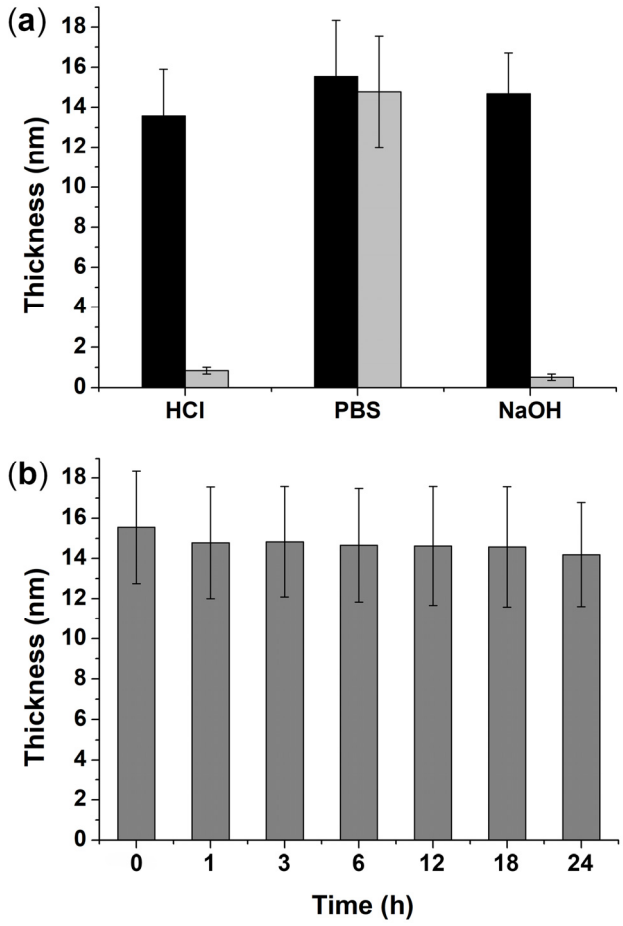

Figure S6. (a) Thickness of the films prepared with quercetin and DETA before (black) and after (light gray) exposure to different pH environments for 1 h and (b) thickness evolution of the films over time after immersion in PBS (pH 7.4). 0 h indicates the as-prepared film.

Figure S7. Photographs of the quercetin/DETA-coated Ti/TiO_2 substrates. The quercetin concentration was varied, and the scale bars represent 2 mm.

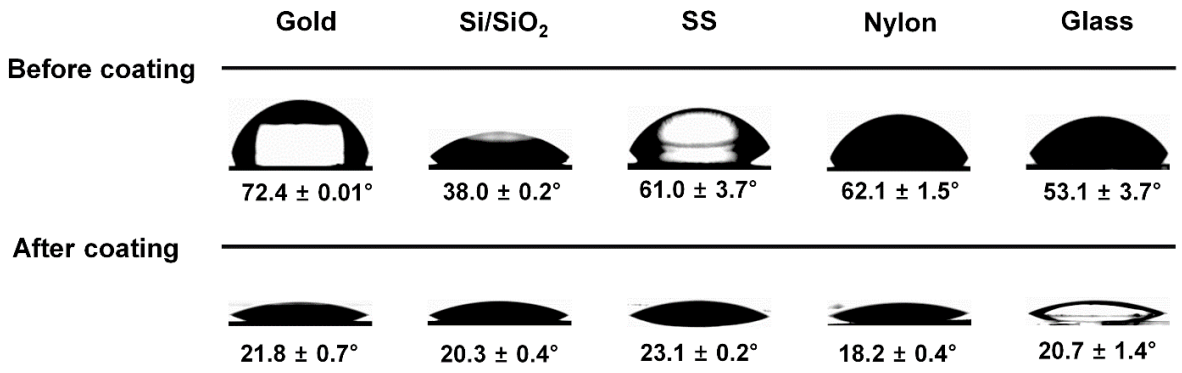

Figure S8. Photographs of the static water contact angles onto various substrates before and after coating with quercetin and DETA.

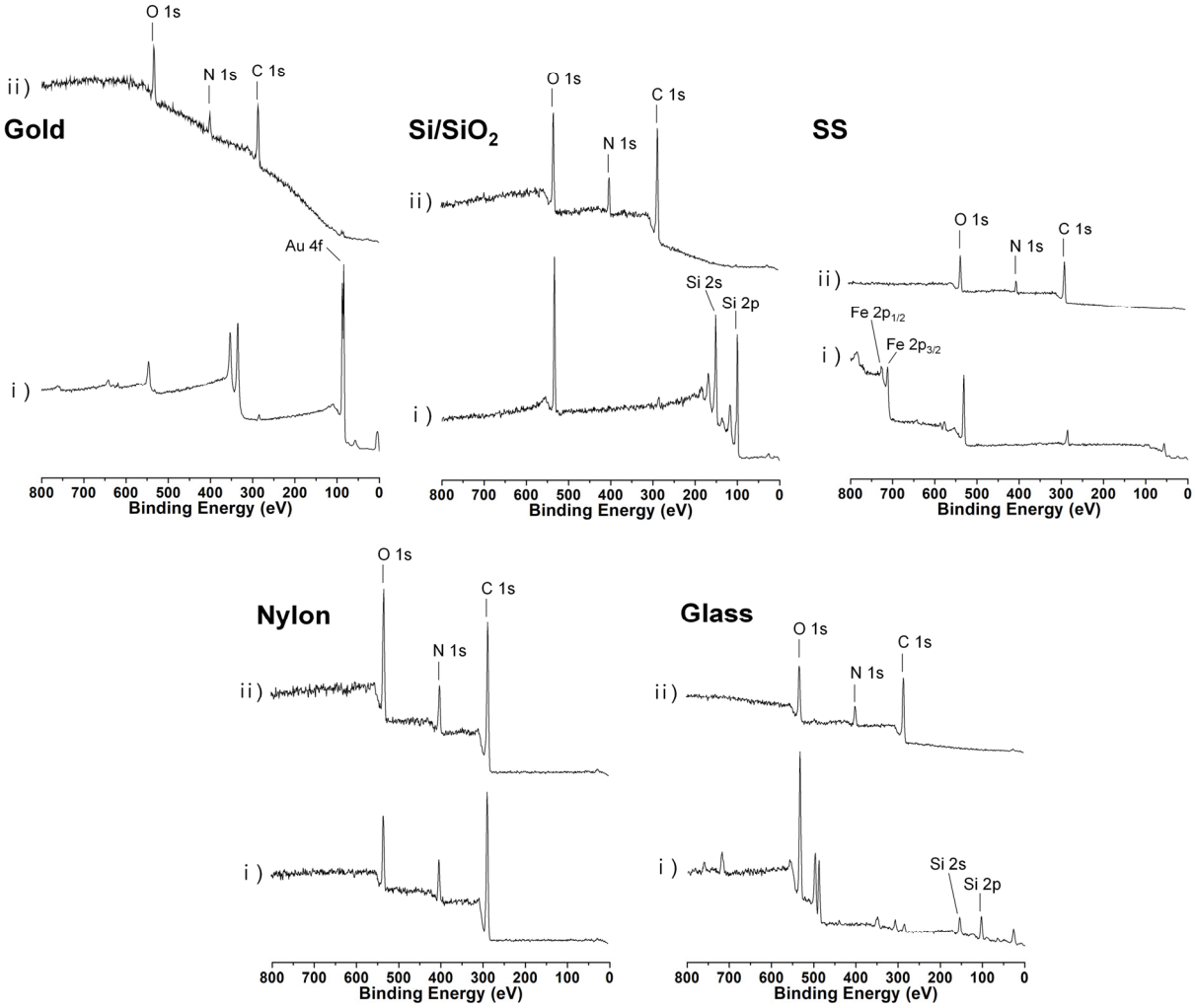

Figure S9. XPS spectra of various substrates i) before and ii) after coating with quercetin and DETA.

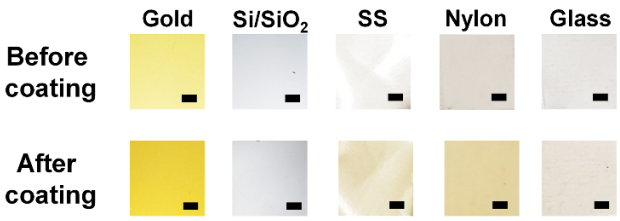

Figure S10. Photographs of various substrates before and after coating with quercetin and DETA. The scale bars represent 2 mm.

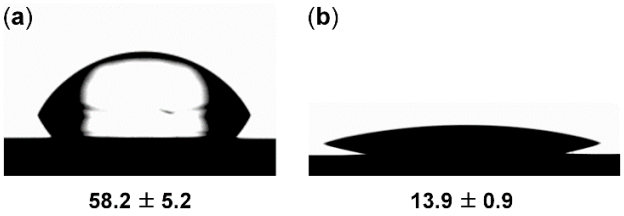

Figure S11. Static water contact angles of the (a) initiator-immobilized and (b) poly(MPDSAH)-grafted Ti/TiO_2 substrates.

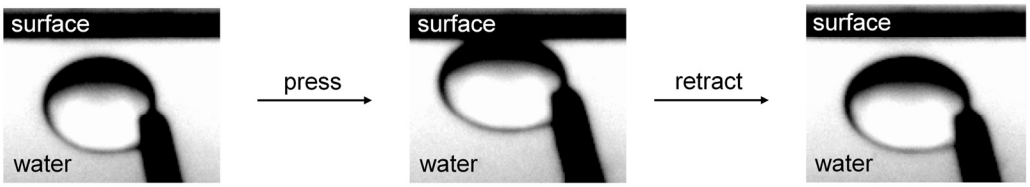

Figure S12. Underwater superoleophobicity of the poly(MPDSAH)-grafted substrate. Hexadecane was used as an oily liquid.