

*Supporting information*

## Highly efficient trans-cis isomerization of lycopene catalyzed by iodine-doped TiO<sub>2</sub> nanoparticles

Qingrui Sun,<sup>ad</sup> Cheng Yang,<sup>b</sup> Jing Li,<sup>b</sup> Waleed Aboshora,<sup>b</sup> Husnain Raza<sup>b</sup> and Lianfu Zhang<sup>\*abc</sup>

<sup>a</sup> State Key Laboratory of Food Science and Technology, Wuxi 214122, China

<sup>b</sup> School of Food Science and Technology, Jiangnan University, Wuxi 214122, China

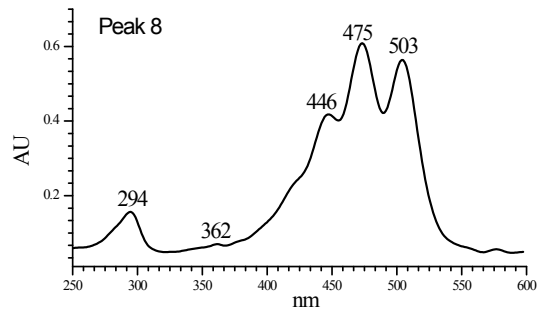
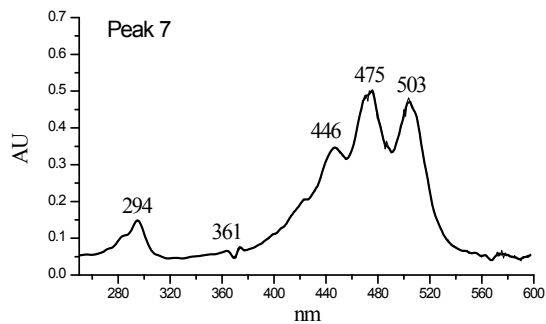
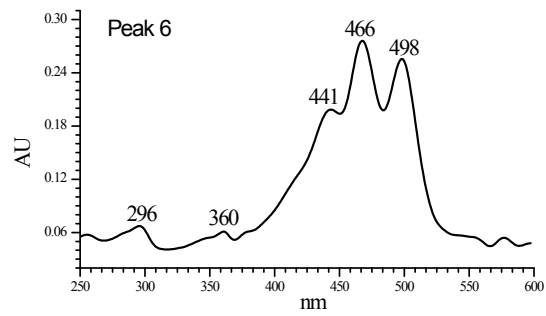
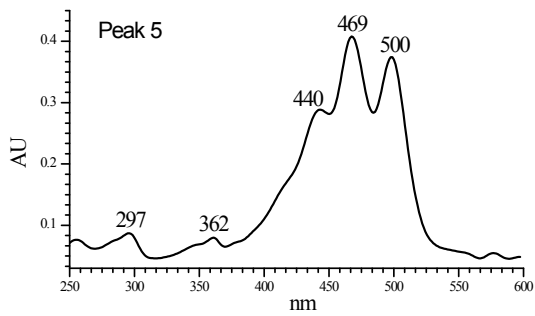
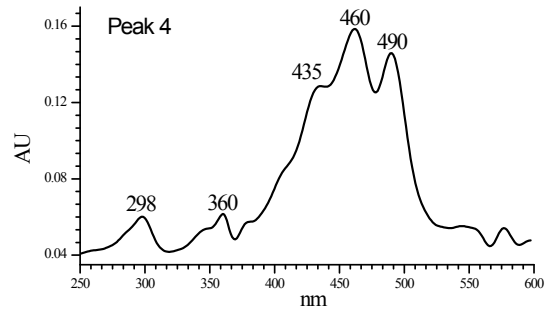
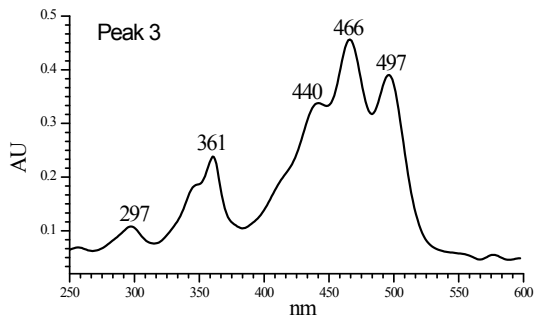
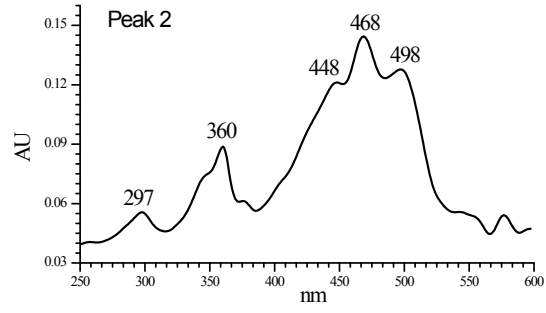
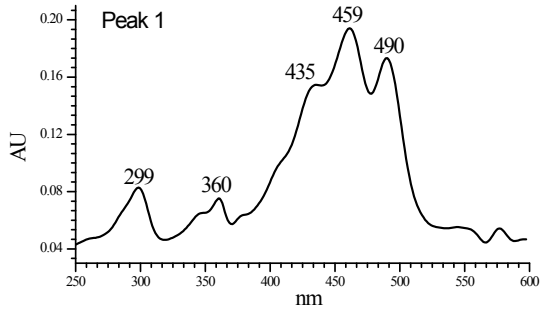
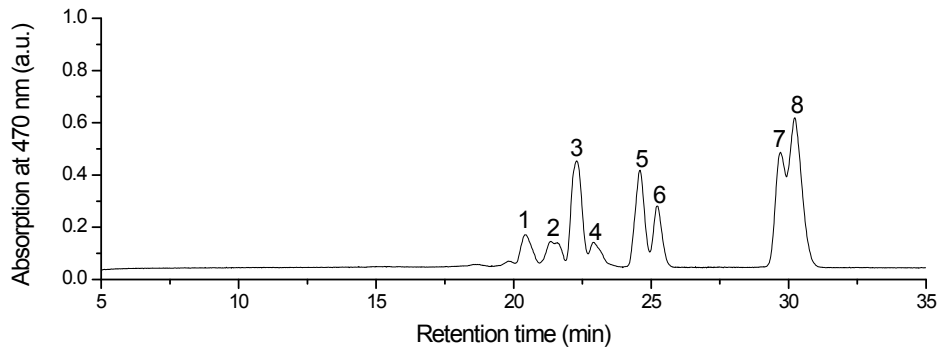
<sup>c</sup> National Engineering Research Center for Functional Food, Wuxi 214122, China

<sup>d</sup> School of Food Science and Technology, Bayi Agricultural University, Daqing 163319, China

\* Corresponding author: Prof. Lianfu Zhang

E-mail: [lianfu@jiangnan.edu.cn](mailto:lianfu@jiangnan.edu.cn) (L. Zhang).

Tel. /fax: +86 510 85917081



**Figure S1** HPLC chromatogram and UV/vis spectra of an isomerised *all-trans*-lycopene catalyzed by I-TiO<sub>2</sub>: peaks 1-6, peak 8 are *cis* isomeric lycopene, peak 7 is *all-trans*- lycopene.

**Table S1** Identification data for lycopene isomers

peak	isomers	Retention min	$\lambda_{\max}$ (In line)				$\lambda_{\max}$ (Report)				Q*	
			nm				nm				calculate	Report
1	isomer 1	20.43	360	435	459	490					0.38	
2	isomer 2	21.36	360	448	468	498					0.61	
3	13Z	22.30	361	440	466	497	361	437	463	494	0.52	0.52 <sup>a</sup>
4	isomer 4	22.91	360	435	460	490					0.38	
5	9Z	24.59	362	440	469	500	361	440	467	496	0.20	0.20 <sup>b</sup>
6	5Z,9Z	25.22	360	441	466	498	361	440	467	496	0.22	0.19 <sup>b</sup>
7	all-E	30.01	361	446	475	503	365	446	473	503	0.12	0.11 <sup>b</sup>
8	5Z	30.22	362	446	475	503	361	446	472	503	0.11	0.11 <sup>b</sup>

<sup>a</sup> Identified according to previous work <sup>1</sup>. <sup>b</sup> Identified according to previous work <sup>2</sup>.

\* Ratio of absorption intensity ( $D_B$ ) at the near-UV maxima (360–362 nm) to absorption intensity ( $D_{II}$ ) at the main absorption maximum (459–476 nm).

## References

1. M. Honda, N. Takahashi, T. Kuwa, M. Takehara, Y. Inoue and T. Kumagai, *Food Chem*, 2015, **171**, 323-329.
2. A. J. Melendez-Martinez, M. Paulino, C. M. Stinco, P. Mapelli-Brahm and X. D. Wang, *J Agric Food Chem*, 2014, **62**, 12399-12406.