Supplementary material

Rapid quantification of oxidation indicators in fish oil by digital image colorimetry

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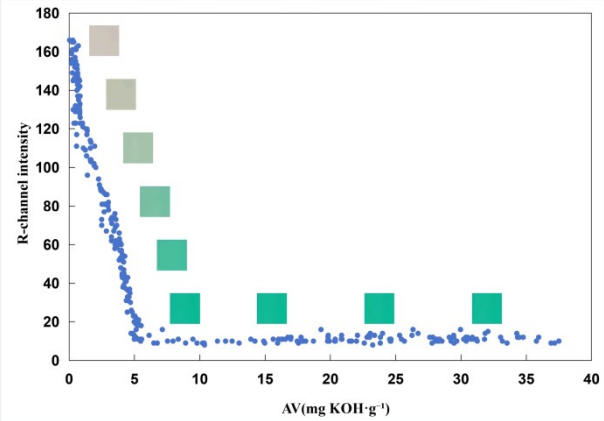

Figure S1 Relationship between acid value and R-channel intensity in the reaction images, and visualization of the color-change threshold used to distinguish low and high oxidation levels.

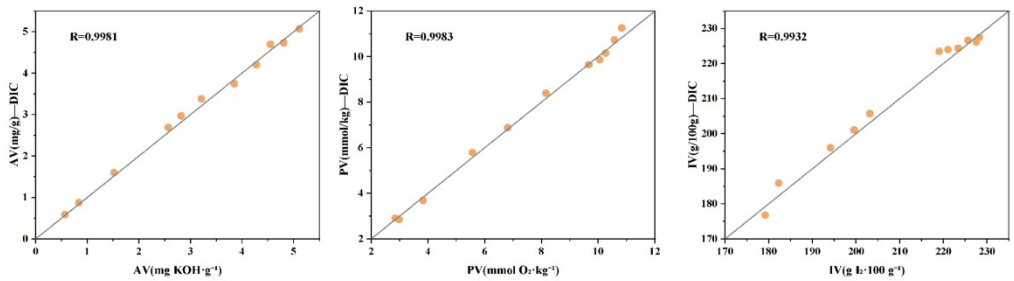

Figure S2 Correlation between oxidation indicators predicted by digital image colorimetry and values measured by titrimetric methods for real oxidized fish oil samples.

Table S1 Comparison of reagent volume and analysis time between DIC and titrimetric methods.

AV			PV			IV		
Reagent	Titrimetric method	DIC method	Reagent	Titrimetric method	DIC method	Reagent	Titrimetric method	DIC method
Ether	50 ml	0	Chloroform	15 ml	0	Cyclohexane	10 ml	1 ml
Isopropanol	50 ml	0	Isooctane	0	0.8 ml	glacial acetic acid	10 ml	1 ml
Cyclohexane	0	4 ml	glacial acetic acid	15 ml	1.2 ml	Wijs reagent	25 ml	2.5 ml
Phenolphthalein	0.1 ml	0	Potassium iodide	1 ml	0.1 ml	Potassium iodide	20 ml	2 ml
Copper soap staining solution solution	0	2 ml	Water	100 ml	0	Water	150 ml	5 ml
-	-	-	Starch solution	0.5 ml	0	Starch solution	0.5 ml	0
Sodium hydroxide standard solution	to endpoint	0	Sodium thiosulfate solution	to endpoint	0	Sodium thiosulfate solution	to endpoint	0
Total (excluding sodium hydroxide)	100.1 ml	6 ml	Total (excluding sodium thiosulfate)	131.5 ml	2.1 ml	Total (excluding sodium thiosulfate)	215 ml	11.5 ml
Time	25 min	4 min	Time	30 min	4 min	Time	120 min	10 min