Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary data

Electrospun cellulose acetate doped with astaxanthin derivatives from *Haematococcus pluvialis* for in vivo anti-aging activity

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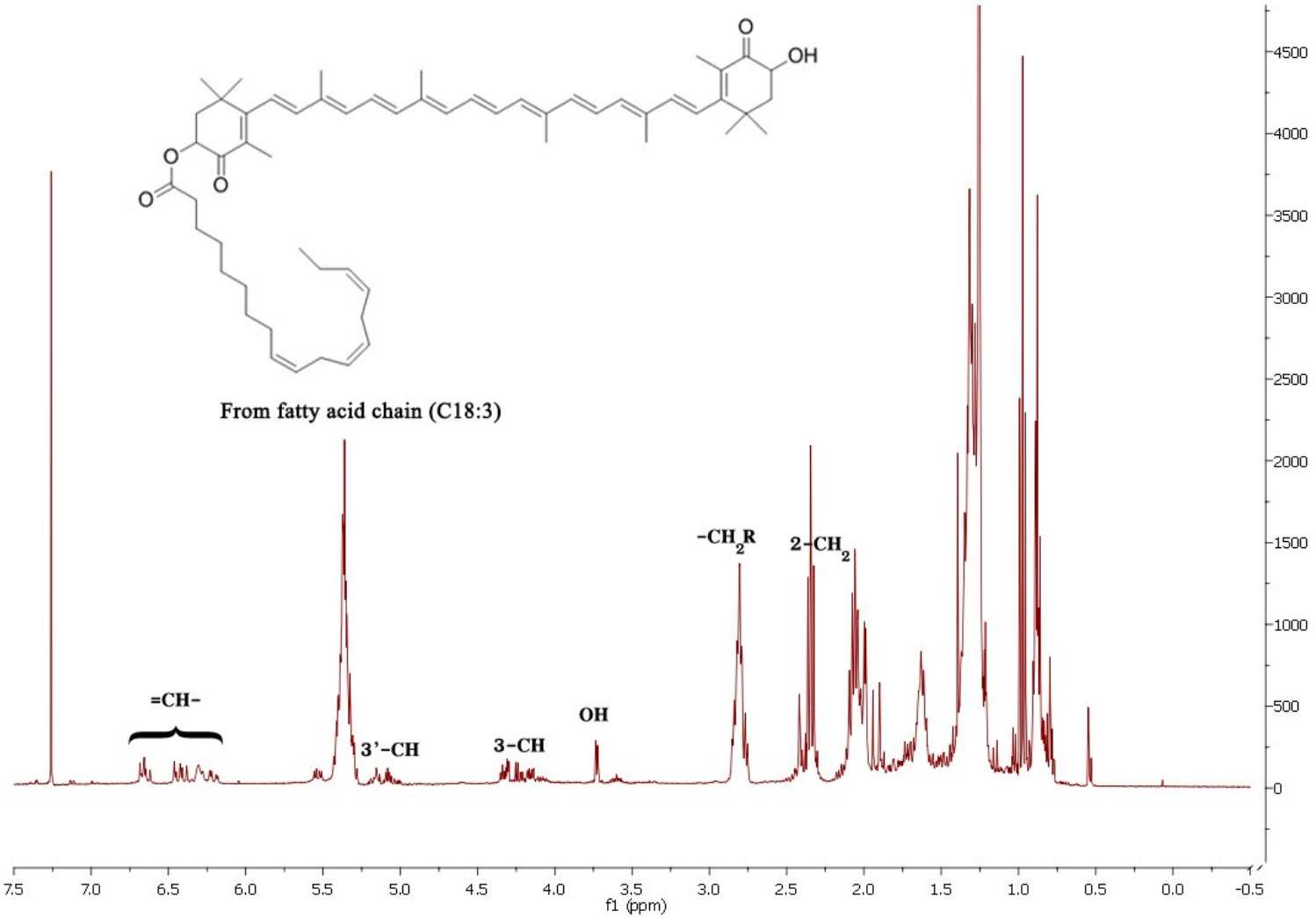

Figure. S1 ^{1}H-NMR 400 MHz spectra of astaxanthin monoester in $CDCl_3$.

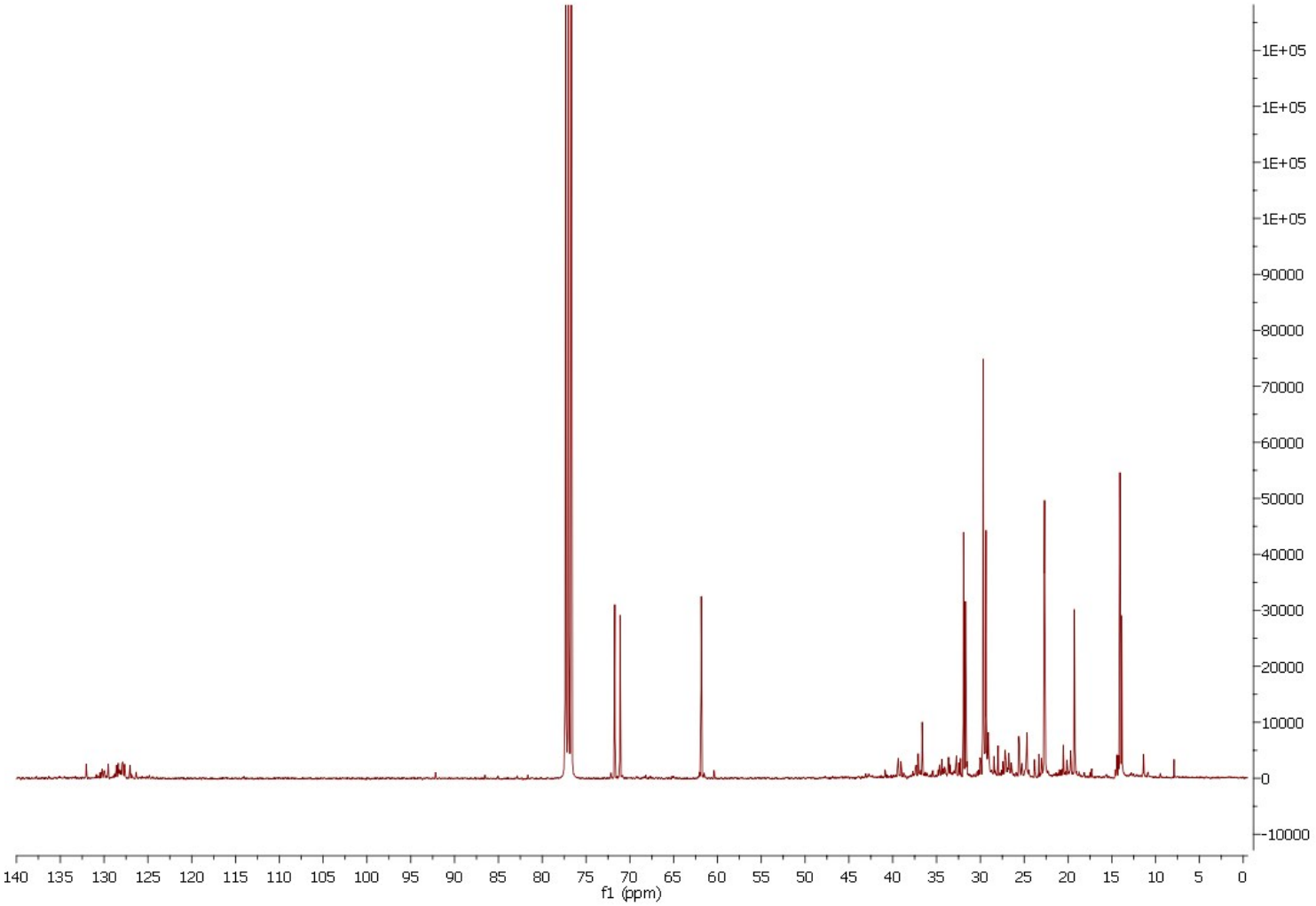

Figure. S2 ^{13}C-NMR 100 MHz spectra of astaxanthin monoester in $CDCl_3$.

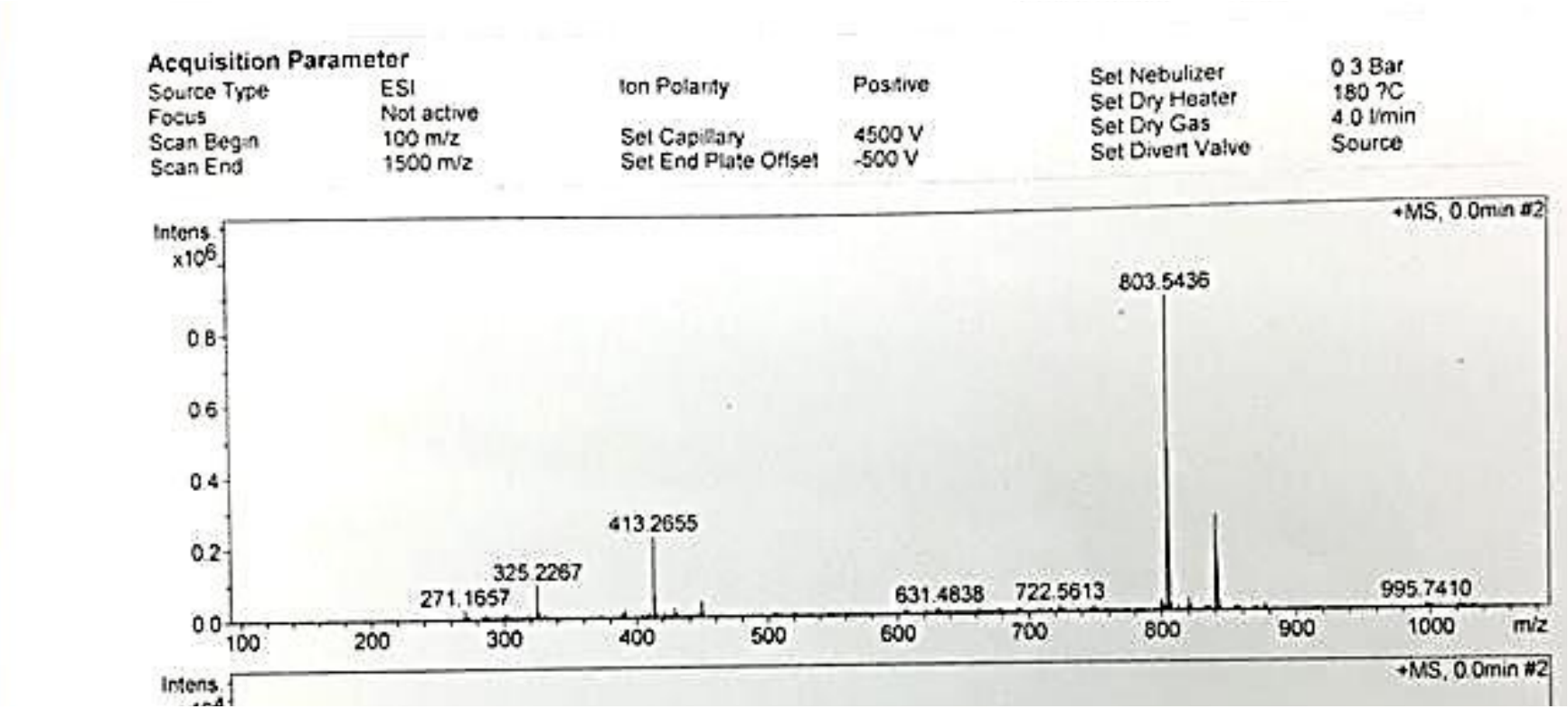

Figure. S3 HRMS spectra of astaxanthin monoester.

Table S1. Chlorophyll a, chlorophyll b and total carotenoids content of DPPH radical scavenging activity from *H. pluvialis* extraction. cE is means crude extraction.

Determination	Value (mg/g cE)
Chlorophyll a	8.72±0.25
Chlorophyll b	2.54±0.38
Total carotenoids content	10.75±0.16

Table S2. IR spectra of astaxanthin derivatives, CA fibers and astaxanthin derivatives loaded CA fibers.

Sample	Wave number (cm^{-1})	Vibration mode
Astaxanthin derivatives	3,485	O-H stretching
	2,964	CH_2 stretching
	1,652	C=C stretching
	978	C-H stretching
CA fibers	3,472	O-H stretching
	2,925	CH_2 stretching
	1,741	C=C stretching
	1,368	$C-CH_3$ stretching
	1,228	C-O-C stretching
	1,037	C-O-C stretching
Astaxanthin derivatives loaded CA fibers	3,489	O-H stretching
	2,932	CH_2 stretching
	1,750	C=O stretching
	1,660	$C-CH_3$ stretching
	1,365	$C-CH_3$ stretching
	1,231	C-O-C stretching
	1,309	C-O-C stretching