



**Supplementary Material S1.** Estimated marginal means plots for aloenin (A), total flavonoids (B) and total non-anthraquinones (C).

**Supplementary Material S2.** Retention time (Rt), wavelengths of maximum absorption in the visible region ( $\lambda_{\text{max}}$ ), mass spectral data, and tentative identification of the phenolic compounds present in the hydroethanolic extracts of the different nutraceutical formulations.

Peak	Rt (min)	$\lambda_{\text{max}}$ (nm)	[M-H] <sup>-</sup> (m/z)	MS <sup>2</sup> (m/z)	Tentative identification
1	11.46	310	337	191(100),173(5),163(11),135(5)	<i>cis</i> 4- <i>O-p</i> -coumaroylquinic acid
2	12.55	310	337	191(100),173(5),163(15),135(6)	<i>trans</i> 4- <i>O-p</i> -coumaroylquinic acid
3	13.74	343	579	459(85),429(100),357(30),327(3),309(13)	2''- <i>O</i> -pentoside-8-C-hexoside-luteolin
4	14.66	348	593	473(100),431(14),311(10)	Apigenin-6,8-C-diglucoside
5	15.43	344	593	473(100),431(14),311(10)	Apigenin-C-hexoside-C-hexoside
6	16.05	297	409	247(100)	Aloenin
7	17.56	271/344	577	457(7),413(100),341(5),311(5),293(29)	Apigenin-2''- <i>O</i> -rhamnose-C-hexoside
8	18.39	271/344	607	443(100), 295(30), 169(80), 125(15)	4-(4'-Hydroxyphenyl)-2-butanone-4'- <i>O</i> - $\beta$ -D-(2''- <i>O</i> -cinnamoyl-6''- <i>O</i> -galloyl)glucopyranoside
9	24.22	220/269/298/354	417	297(100),255(5)	Aloin B (isobarbaloin)
10	25.99	220/269/298/354	417	297(100),255(5)	Aloin A (barbaloin)
11	27.86	252/301	553	407(100),375(5),347(14)275(47),259(3),233(4),191(2)	2'- <i>p</i> -methoxycoumaroyl aloenin
12	28.88	244/301	583	407(100),389(30),243(5)	7-methylether of 2'-feruloylaloenin malonyl-4,5-O-dicaffeoylquinic acid