Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Data

In-vitro studies on the pharmacological potential, anti-tumor, antimicrobial, and acetylcholinesterase inhibitory activity of marine-derived *Bacillus velezensis* AG6 exopolysaccharide

Table S1. Culture and Morphological Characteristics of *Bacillus velezensis* strain AG6

Bacillus velezensis	**Shape and Culture Characteristics**
Strain AG6	Gram postive Rod, irregular large colony, pale yellow, Rough Colony texture, Dull Colony surface, Convex, , Flat Elevation, non-capsulated, spore forming, non-motile, non-acid fast

Table S2. Physiological and biochemical Characteristics of *Bacillus velezensis* strain AG6.

Physiological characteristics	***Bacillus velezensis* strain AG6**
Catalase	+
Citrate	+
Coagulase	-
Indol	-
MR(Methylred)	-
VP (Voges proskauer)	+
Oxidase	-
H_2S	-
Urease	+
Nitrate reduction	+
Glucose	+
Lactose	+
Sucrose	-
Mannose	-

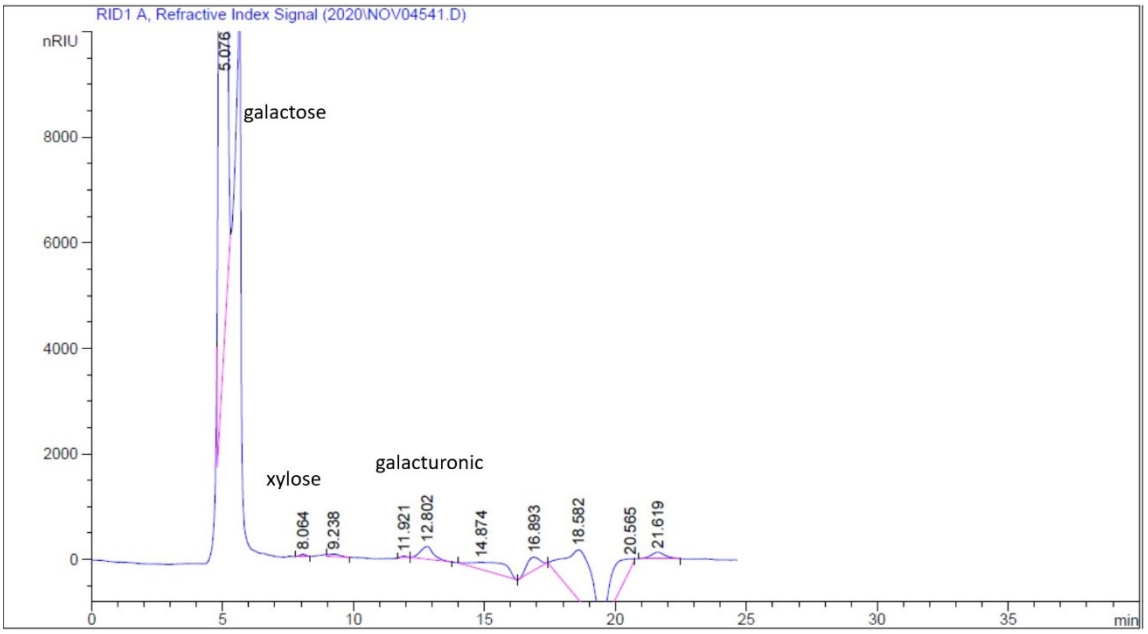

Figure S1. HPLC analysis of the EPSF6 from *Bacillus velezensis* strain AG6

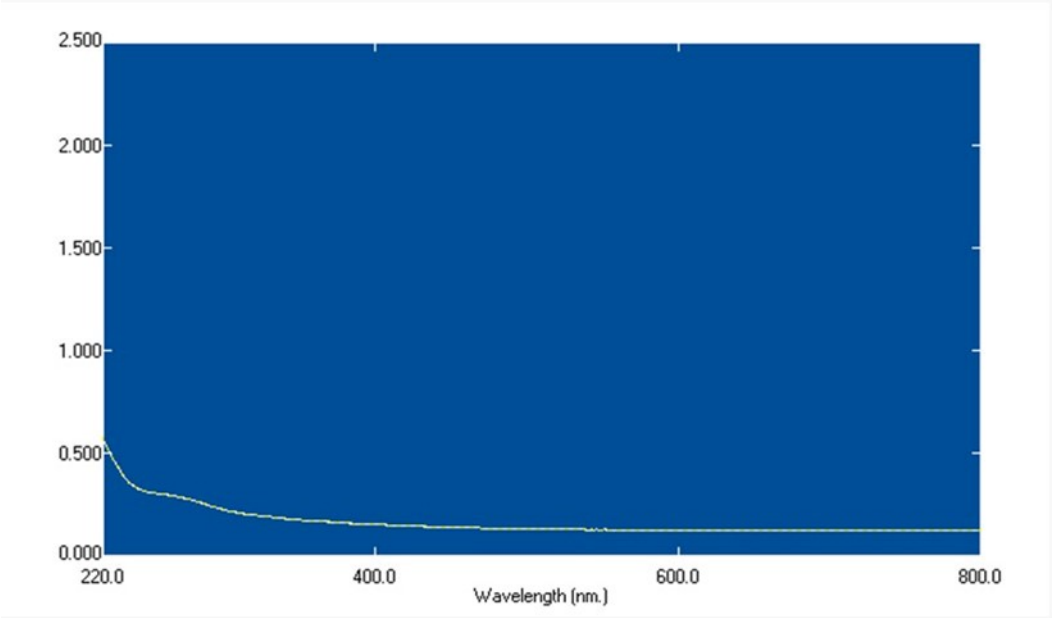

Figure S2. U.V Spectrum of EPSF6 isolated from *Bacillus velezensis* strain AG6.

Antioxidant Control (Ascorbic Acid)

Table S3. The ability of ascorbic acid to scavenge DPPH free radicals over different time intervals

Concentration (µg/mL)	DPPH	H_2O_2	ABTS
20	61.47±1.02	55.78±1.12	64.96±1.24
40	82.16±1.92	70.34±1.73	83.64±1.11
60	91.59±1.10	84.62±1.13	90.27±0.83
80	97.10±0.87	92.40±0.96	95.68±1.64
100	99.13±1.45	97.58±1.05	99.14±1.39
IC_{50}	86.44±1.42	88.71±0.98	87.50±0.75

Antitumor Control (Cisplatin)

Table S4. Cisplatin IC_{50} against different cancerous cell lines

Cell line	Cisplatin IC_{50} (µg/ml)	S.D. (±)
HepG-2	1.29	0.17
A-549	4.08	0.46
HCT-116	2.36	0.32
HEp-2	4.21	0.19
PC-3	3.79	0.35
MCF-7	3.41	0.25

Anti-inflammatory 5-LOX control (ibuprofen)

Table S5. The inhibitory activity of ibuprofen against 5-LOX enzymatic activity.

conc. (µg/ ml)	Mean of LOX inhibitory%
125	100.00
62.5	100.00
31.25	100.00
15.63	89.21 ±1.2
7.81	78.34 ±0.92
3.9	70.12 ±2.1
1.95	57.32 ±1.3
0.98	42.16 ±0.63
0	0
IC_{50}	1.5±1.3

Anti-inflammatory COX-2 control (celecoxib)

Table S6. The inhibitory activity of celecoxib against COX-2 enzymatic activity.

conc. (µg/ ml)	Mean of LOX inhibitory%
31.25	100
15.63	100
7.81	100
3.9	100
1.95	82.15
0.98	66.34
0.49	52.72
0.24	49.35
0.12	19.35
0	0.00
IC_{50}	0.28± 1.7

Table S7. The inhibitory activity of Eserine against acetylcholinesterase activity.

Conc. (µg/ ml)	Activity (%)
0.02	15.09 ± 1.02
0.04	26.67 ± 1.36
0.06	37.11 ± 1.15
0.08	45.92 ± 1.08
0.1	55.36 ± 1.14
0.12	64.78 ± 1.20
IC_{50}	0.09(µg/ ml)