Supplementary file

The antimicrobial, antioxidant, and anticancer activity of greenly synthesized selenium and zinc composite nanoparticles using *Ephedra aphylla* extract

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Table S1. Cytotoxic activity of some compounds against human tumor cells (% inhibition).

Samples	Conc. (µg/mL)	HePG-2	MCF-7	HCT-116	PC3	HeP2	Hela	WI-38
Doxorubicin	100	93.7	93.8	92.9	91.2	91.6	92.7	15.2
	50	88.8	89.1	86.1	83.7	84.7	87.9	11.7
	25	85.9	85.7	81.3	78.3	78.3	81.1	9.4
	12.5	71.7	73.1	68.6	61.1	62.1	69.2	6.2
	6.25	54.2	58.5	52.1	40.8	41.8	48.3	3.5
	3.125	42.4	41.6	39.5	26.4	27.4	37.6	2.6
	1.56	28.8	30.9	26.2	4.7	5.7	26	1.4
Ephedra aphylla	100	72.1	67.5	63.6	64.7	72.8	76.4	15.9
	50	61.9	59.3	52.9	50.8	60.2	61.9	15.5
	25	51.8	42.9	35.2	45.2	46.9	50.8	13.6
	12.5	36.3	32	28.1	28.4	38.3	47.3	11.4
	6.25	20.7	10.7	7.7	14.5	12.6	24	8.7
	3.125	7.4	0	0.4	2.7	6.1	4.8	7.8
	1.56	0	0	0	0	0	0	5.6
***Ephedra aphylla*+ SeNPs**	100	91.6	79.6	86.8	76.3	84.4	91.7	15.9
	50	85.7	71.9	81.4	68.2	76.1	82.4	14.3
	25	73.9	62.8	72.5	57.4	70.9	74.6	10.6
	12.5	67.1	51.7	63.9	48.1	59.8	61.8	8.3
	6.25	45.8	33.1	37.2	33.5	30.6	42.9	6.8
	3.125	29.2	12.5	20.7	10.6	18.7	22.5	5.1
	1.56	13.5	0	4.6	0	1.5	3.6	3.8
***Ephedra aphylla*+ ZnNPs**	100	82.5	79.7	77.2	77.9	83	85.2	15.9
	50	76.1	74.5	70.5	69.2	75.1	76.1	9.7
	25	69.8	64.2	59.4	65.7	66.8	69.2	8.5
	12.5	60.1	57.4	55	55.2	61.4	67	7.1
	6.25	50.4	44.1	42.2	46.5	45.3	52.4	5.5
	3.125	42	37.4	37.6	39.1	41.2	40.4	4.9
	1.56	0	0	0	0	0	0	3.5
Selenium sulfate	100	48.5	42.1	45.9	40.4	44.7	48.5	15.9
	50	45.3	38.0	43.1	36.1	40.3	43.6	15.1
	25	39.1	33.2	38.4	30.4	37.5	39.5	13.1
	12.5	35.5	27.4	33.8	25.4	31.6	32.7	11.9
	6.25	24.2	17.5	19.7	17.7	16.2	22.7	11.1
	3.125	15.4	6.6	11.0	5.6	9.9	11.9	10.2
	1.56	7.1	0	2.4	0	0.8	1.9	9.5
Zinc sulfate	100	38.1	35.7	33.7	34.2	38.5	40.4	15.9
	50	32.8	31.4	28.0	26.9	31.9	32.8	15.7
	25	27.4	22.7	18.6	23.9	24.8	26.9	14.7
	12.5	19.2	16.9	14.9	15.0	20.3	25.0	13.6
	6.25	11.0	5.7	4.1	7.7	6.7	12.7	12.1
	3.125	3.9	0	0.2	1.4	3.2	2.5	11.7
	1.56	0	0	0	0	0	0	10.5

Table S2. Percent of average relative viability of cells.

Samples	Conc. (µg/ mL)	HePG-2	MCF-7	HCT-116	PC3	HeP2	Hela	WI-38
Doxorubicin	100	6.3	6.2	7.1	8.8	8.4	7.3	84.8
	50	11.2	10.9	13.9	16.3	15.3	12.1	88.3
	25	14.1	14.3	18.7	21.7	21.7	18.9	90.6
	12.5	28.3	26.9	31.4	38.9	37.9	30.8	93.8
	6.25	45.8	41.5	47.9	59.2	58.2	51.7	96.5
	3.125	57.6	58.4	60.5	73.6	72.6	62.4	97.4
	1.56	71.2	69.1	73.8	95.3	94.3	74.0	98.6
Ephedra aphylla	100	27.9	32.5	36.4	35.3	27.2	23.6	84.1
	50	38.1	40.7	47.1	49.2	39.8	38.1	84.5
	25	48.2	57.1	64.8	54.8	53.1	49.2	86.4
	12.5	63.7	68	71.9	71.6	61.7	52.7	88.6
	6.25	79.3	89.3	92.3	85.5	87.4	76	91.3
	3.125	92.6	100	99.6	97.3	93.9	95.2	92.2
	1.56	100	100	100	100	100	100	94.4
***Ephedra aphylla*+ SeNPs**	100	8.4	20.4	13.2	23.7	15.6	8.3	84.1
	50	14.3	28.1	18.6	31.8	23.9	17.6	85.7
	25	26.1	37.2	27.5	42.6	29.1	25.4	89.4
	12.5	32.9	48.3	36.1	51.9	40.2	38.2	91.7
	6.25	54.2	66.9	62.8	66.5	69.4	57.1	93.2
	3.125	70.8	87.5	79.3	89.4	81.3	77.5	94.9
	1.56	86.5	100	95.4	100	98.5	96.4	96.2
***Ephedra aphylla*+ ZnNPs**	100	17.5	20.3	22.8	22.1	17	14.8	84.1
	50	23.9	25.5	29.5	30.8	24.9	23.9	90.3
	25	30.2	35.8	40.6	34.3	33.2	30.8	91.5
	12.5	39.9	42.6	45	44.8	38.6	33	92.9
	6.25	49.6	55.9	57.8	53.5	54.7	47.6	94.5
	3.125	58	62.6	62.4	60.9	58.8	59.6	95.1
	1.56	100	100	100	100	100	100	96.5
Selenium sulfate	100	51.5	57.9	54.1	59.6	55.3	51.5	84.1
	50	54.7	62.0	56.9	63.9	59.7	56.4	84.9
	25	60.9	66.8	61.6	69.6	62.5	60.5	86.9
	12.5	64.5	72.6	66.2	74.6	68.4	67.3	88.1
	6.25	75.8	82.5	80.3	82.3	83.8	77.3	88.9
	3.125	84.6	93.4	89.0	94.4	90.1	88.1	89.8
	1.56	92.9	100	97.6	100	99.2	98.1	90.5
Zinc sulfate	100	61.9	64.3	66.3	65.8	61.5	59.6	84.1
	50	67.2	68.6	72.0	73.1	68.1	67.2	84.3
	25	72.6	77.3	81.4	76.1	75.2	73.1	85.3
	12.5	80.8	83.1	85.1	85.0	79.7	75.0	86.4
	6.25	89.0	94.3	95.9	92.3	93.3	87.3	87.9
	3.125	96.1	100	99.8	98.6	96.8	97.5	88.3
	1.56	100	100	100	100	100	100	89.5