

**Table S1.** Design expert assisted with formulations and features for *Artemisia absinthium*

Entry	Volume of extracted gold nanoparticles (mL)	Concentration of HAuCl <sub>4</sub> (mM)	pH	Time (min)	Z-average	Polydispersity index	Zeta potential
1	0.5	1	4	10	51.01	0.574	-2.79
2	0.5	2	7	50	176.8	0.239	-8.30
3	0.5	4	8	100	187.40	0.374	-3.54
4	2	1	7	100	123.10	0.228	-3.95
5	2	2	8	10	110.20	0.311	-5.91
6	2	4	4	50	150.20	0.381	-3.54
7	4	1	8	50	174.00	0.291	-5.04
8	4	2	4	100	81.28	0.243	-3.60
9	4	4	7	10	130.20	0.293	-7.46

**Table S2.** Design expert assisted formulations and features for *Morrus nigra* nanoparticles.

Entry	Volume of extracted gold nanoparticles	Concentration of HAuCl <sub>4</sub> (mM)	pH	Time (min)	Z-average	Polydispersity index	Zeta potential
1	0.5	1	4	10	54.11	0.400	-5.6
2	0.5	2	7	50	44.67	0.386	-2.6
3	0.5	4	8	100	126.50	0.356	-3.2
4	1	1	7	100	174.60	0.392	-7.4
5	1	2	8	10	54.32	0.572	-16.0
6	1	4	4	50	109.70	0.841	-8.0
7	2	1	8	50	172.20	0.296	-12.5
8	2	2	4	100	90.50	0.611	-11.7
9	2	4	7	10	93.000	0.703	-5.9

**Table S3.** Design expert assisted with formulations and features for *Peganum harmala* nanoparticles.

Entry	Volume of extracted gold nanoparticles (mL)	Concentration of HAuCl <sub>4</sub> (mM)	pH	Time (min)	Z-average	Polydispersity index	Zeta potential
1	0.5	1	4	10	217.80	0.291	-19.8
2	0.5	2	7	50	precipitated	precipitated	precipitated
3	0.5	4	8	100	precipitated	precipitated	precipitated
4	2	1	7	100	precipitated	precipitated	precipitated
5	2	2	8	10	precipitated	precipitated	precipitated
6	2	4	4	50	precipitated	precipitated	precipitated
7	4	1	8	50	precipitated	precipitated	precipitated
8	4	2	4	100	precipitated	precipitated	precipitated
9	4	4	7	10	precipitated	precipitated	precipitated