

Supplementary material:

Table 1: Cavity information for modelled GST of *M. incognita*

Cavity Name	Volume (Å ³)	Surface Area (Å ²)
Cav1	489.472	1491.2
Cav2	130.048	344.32
Cav3	17.92	66.56

Table 2: Result of *in silico* docking analysis

Phytochemical (Molecular Formula)	MolDock score	Rerank score	Number of hydrogen bonds	Interacting residues
Alpha pinene (C ₁₀ H ₁₆)	-71.48	-60.31	1	Thr164
Alpha terpineol(C ₁₀ H ₁₈ O)	-70.91	-68.91	2	Gly49, Gln50
Beta caryophyllene (C ₁₅ H ₂₄)	-97.15	-88.36	1	Gly165
Capsaicin (C ₁₈ H ₂₇ NO ₃)	-92.075	-91.54	3	Gly99, Val100, Val02
Cinnamic acid (C ₉ H ₈ O ₂)	-80.85	-65.39	3	Phe110, Phe112, Arg113
Citronellol (C ₁₀ H ₂₀ O)	-66.44	-59.67	3	Gly99, Val100, Val02
Curcumin (C ₂₁ H ₂₀ O ₆)	-89.589	-79.51	7	Ile168, Glu169, Met170, Tyr197, Lys200, Lys202, Cys203
Eugenol (C ₁₀ H ₁₂ O ₂)	-86.18	-76.95	3	Phe110, Phe112, Arg113
Geraniol (C ₁₀ H ₁₈ O)	-84.92	-74.32	3	Phe110, Phe112, Arg113
Isoeugenol (C ₁₀ H ₁₂ O ₂)	-77.97	-70.46	4	His162, Phe163, Thr164, Gly165
Linalool (C ₁₀ H ₁₈ O)	-88.94	-79.83	4	Phe158, Ser159, Val160, Ala161
Myristicin (C ₁₁ H ₁₂ O ₃)	-94.74	-86.88	1	Met166
Neral (C ₁₀ H ₁₆ O)	-84.07	-66.59	1	Gly165
N-vanillylnonanamide (C ₁₇ H ₂₇ NO ₃)	-81.35	-56.74	3	Met167, Ile168, Glu169
Piperine (C ₁₇ H ₁₉ NO ₃)	-79.50	-60.33	2	Phe93, Leu94
Vanillin (C ₈ H ₈ O ₃)	-76.08	-41.84	2	Met170, Glu171

Table 3: *In vitro* GST assay

Phytochemical Treatments	GST-activity (Units*)	Percentage of inhibition
Control (+CDNB without phytochemical)		119.67
<i>alpha</i> - pinene	17.33	85.52
<i>apha</i> - terpineol	7	94.152
<i>beta</i> - caryophyllene	0.167	99.86
capsaicin	6.33	94.71
Cinnamic acid	9.33	92.20
citronellol	30	74.93
curcumin	9	92.48
eugenol	1.67	98.61
geraniol	8.67	92.76
isoeugenol	14	88.31
linalool	13	89.14
myristicin	0.67	99.44
neral	9.33	92.20
NVA (N-vanillylnonanamide)	12.67	89.42
piperine	13	89.14
vanillin	15	87.47

Table 4: Results for *in vitro* bioassay

Phytochemical	Mortality rate in different concentration of compounds			
	25 µgml ⁻¹	50 µgml ⁻¹	100 µgml ⁻¹	200 µgml ⁻¹
Control			98.6	
<i>Beta</i> - caryophyllene	60.3	69.6	76.6	78
Eugenol	34	48	56.3	61.6
Cinnamic acid	40	46.6	51	55
N-vanillylnonanamide	30	39	43.5	49