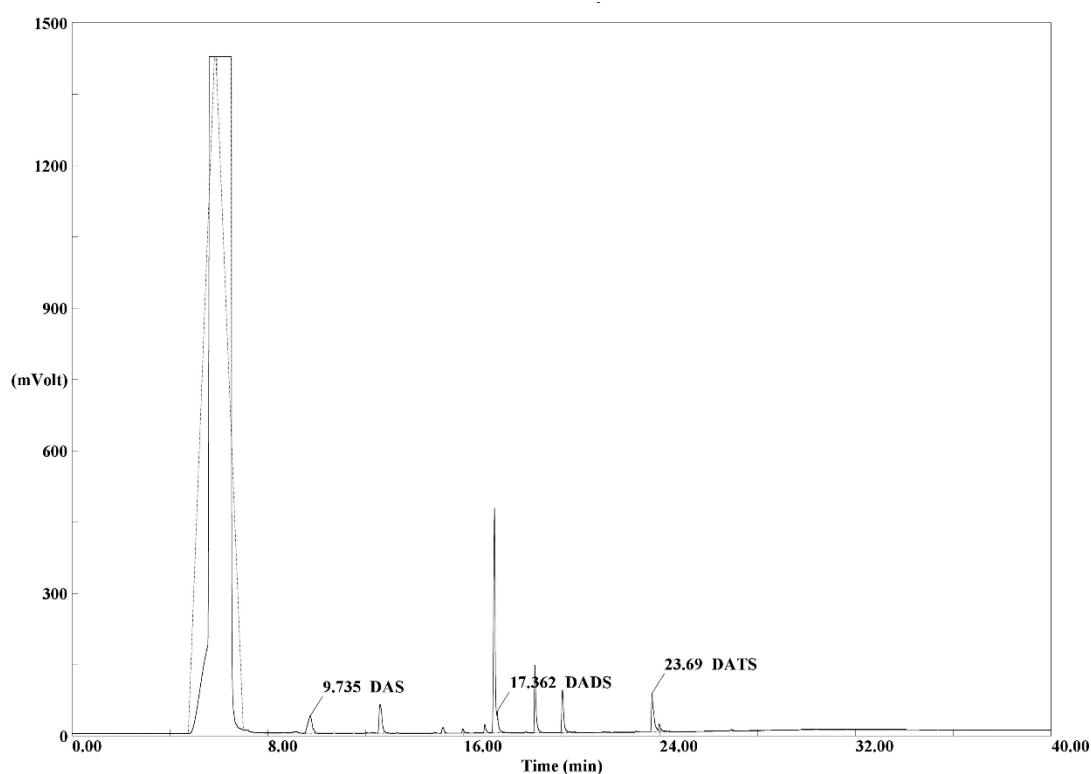


### Supplementary data



**Supplementary Figure 1.** The components of garlic essential oil (GEO) in different retention time (RT) used gas chromatograph (GC).

The three major components of GEO including DADS (36.9 %), DATS (21%), and DAS (7.9 %) accounted for 65.0% of the total oil.

DAS (diallyl sulfide): 9.73 min

DADS (diallyl disulfide): 17.36 min

DATS (diallyl trisulfide): 23.69 min

**Supplementary Table 1.** The effects of GEO administration on levels of DA, 5-HT, and their metabolites in the frontal cortex and hippocampus of rats in forced swimming test (FST).

Groups	5-HT	5-HIAA	DA	DOPAC	HVA
	ng/g brain tissue		ng/g brain tissue		
Frontal cortex					
CTL	632.7 ± 104.2 <sup>b</sup>	1003 ± 504.8 <sup>a</sup>	1048 ± 425.1 <sup>b</sup>	936.8 ± 203.4 <sup>a</sup>	1815 ± 1417 <sup>a</sup>
GEO 25	715.9 ± 128.7 <sup>ab</sup>	799.7 ± 85.8 <sup>a</sup>	2394 ± 712.4 <sup>a</sup>	742.8 ± 99.3 <sup>ab</sup>	1083 ± 155.2 <sup>a</sup>
GEO 50	878.7 ± 235 <sup>a</sup>	940.1 ± 159.7 <sup>a</sup>	2347 ± 1171 <sup>a</sup>	730 ± 108.9 <sup>b</sup>	1101 ± 164.3 <sup>a</sup>
FLU	806.5 ± 225.6 <sup>ab</sup>	799.6 ± 181.5 <sup>a</sup>	1705 ± 812 <sup>ab</sup>	928.6 ± 185.8 <sup>a</sup>	1276 ± 275.4 <sup>a</sup>
Hippocampus					
CTL	124 ± 77.1 <sup>b</sup>	103.5 ± 19.2 <sup>a</sup>	N.D.	N.D.	N.D.
GEO 25	217 ± 83.7 <sup>a</sup>	115.2 ± 29.2 <sup>a</sup>	N.D.	N.D.	N.D.
GEO 50	165.9 ± 20.6 <sup>ab</sup>	87.28 ± 24.8 <sup>a</sup>	N.D.	N.D.	N.D.
FLU	136.3 ± 23.6 <sup>b</sup>	87 ± 7.8 <sup>a</sup>	N.D.	N.D.	N.D.

Data are presented as the mean ± SD (n = 6). Statistical analysis was performed using one-way ANOVA with Duncan's multiple-comparison test. Different letters indicate significant differences among groups at the level of  $p < 0.05$ . CTL, control; GEO, garlic essential oil; FLU, fluoxetine 10 mg/kg bw.

**Supplementary Table 2.** The effects of GEO and DADS administration on levels of DA, 5-HT, and their metabolites in the frontal cortex and hippocampus of rats in unpredictable chronic mild stress (UCMS).

Groups	5-HT	5-HIAA	DA	DOPAC	HVA
	ng/g brain tissue			ng/g brain tissue	
Frontal cortex					
CON	742 ± 103.7 <sup>b</sup>	697.9 ± 101 <sup>a</sup>	2131 ± 1380 <sup>b</sup>	604.2 ± 171.8 <sup>c</sup>	1016 ± 131.7
UCMS	422.5 ± 60.1 <sup>c</sup>	554.8 ± 248.6 <sup>ab</sup>	1207 ± 631.6 <sup>b</sup>	491.3 ± 61.4 <sup>c</sup>	N.D.
GEO 25	1413 ± 516.3 <sup>a</sup>	718.7 ± 375.4 <sup>a</sup>	8597 ± 5440 <sup>a</sup>	832.5 ± 393 <sup>a</sup>	1957 ± 1670
GEO 50	924.1 ± 334 <sup>b</sup>	697.1 ± 143.9 <sup>ab</sup>	3466 ± 2636 <sup>b</sup>	607.4 ± 108 <sup>b</sup>	990.9 ± 468.5
DADS 10	715 ± 77.6 <sup>bc</sup>	661.4 ± 113.2 <sup>ab</sup>	1814 ± 973.7 <sup>b</sup>	479.4 ± 109.1 <sup>bc</sup>	945.6 ± 182.7
DADS 20	672 ± 208.9 <sup>bc</sup>	465.7 ± 118.5 <sup>b</sup>	739.1 ± 458.8 <sup>b</sup>	359.2 ± 73.9 <sup>bc</sup>	N.D.
FLU	717.4 ± 111.4 <sup>bc</sup>	454.9 ± 75.5 <sup>b</sup>	1543 ± 297.8 <sup>b</sup>	555.2 ± 93.8 <sup>bc</sup>	N.D.
Hippocampus					
CON	404.9 ± 80.21 <sup>a</sup>	398.9 ± 105.7 <sup>b</sup>	N.D.	N.D.	N.D.
UCMS	240.2 ± 56.7 <sup>cd</sup>	514.6 ± 103.2 <sup>a</sup>	N.D.	N.D.	N.D.
GEO 25	281.8 ± 124.1 <sup>bcd</sup>	340.2 ± 80.7 <sup>b</sup>	N.D.	N.D.	N.D.
GEO 50	211 ± 147.1 <sup>de</sup>	291.5 ± 66.1 <sup>b</sup>	N.D.	N.D.	N.D.
DADS 10	326.5 ± 87.1 <sup>abc</sup>	368.2 ± 131.1 <sup>b</sup>	N.D.	N.D.	N.D.
DADS 20	358 ± 72.4 <sup>ab</sup>	290.7 ± 47.2 <sup>b</sup>	N.D.	N.D.	N.D.
FLU	124.4 ± 82.9 <sup>e</sup>	338.1 ± 143.9 <sup>b</sup>	N.D.	N.D.	N.D.

Data are presented as the mean ± SD (n = 7). Statistical analysis was performed using one-way ANOVA with Duncan's multiple-comparison test. Different letters indicate significant differences among groups at the level of  $p < 0.05$ . UCMS, unpredictable chronic mild stress; CON, control; GEO, garlic essential oil; DADS, diallyl disulfide;

FLU, fluoxetine 10 mg/kg bw.