70%

15.7%　8.8%　12.4%

2.31%　2.24%　1.18%

1　　　　　　　Acetic acid-induced writhing response

Fig. 5

0.1　0.5　1.0 g/kg

p　0.01

2　　　　　　formalin-induced licking response

0.1　0.5　1.0 g/kg

5%　　　　early phase　　late phase　　　　　　　　Fig.

6, Fig. 7　　　　　　　　　　5%　　　　　early phase

0.1　0.5　1.0 g/kg

5%　　　　late phase　　　　　　Fig. 9

late phase　　　　　　　　Fig.

9

1   0.1 0.5 1.0 g/kg

-carrageenin   Fig. 10

2   -carrageenin

Fig. 11

3   -carrageenin

3-5   Fig. 11

1   1.0 g/kg   SOD

GSH-Px   GSH-Rx   0.1

0.5 1.0 g/kg   GSH-Px   Table 3

2   1.0 g/kg   GSH-Px

Table 4

3   0.1 0.5 1.0 g/kg

SOD   1.0 g/kg   GSH-Px

Table 5

Table 1

	( ) (g)	(g)	%
	168.3	26.39	15.7
	622.5	55.05	8.8
	368	45.50	12.4

DC: *D. crumenatum*. DM: *D. moniliforme*. EL: *E. lonchophylla*.

Table 2

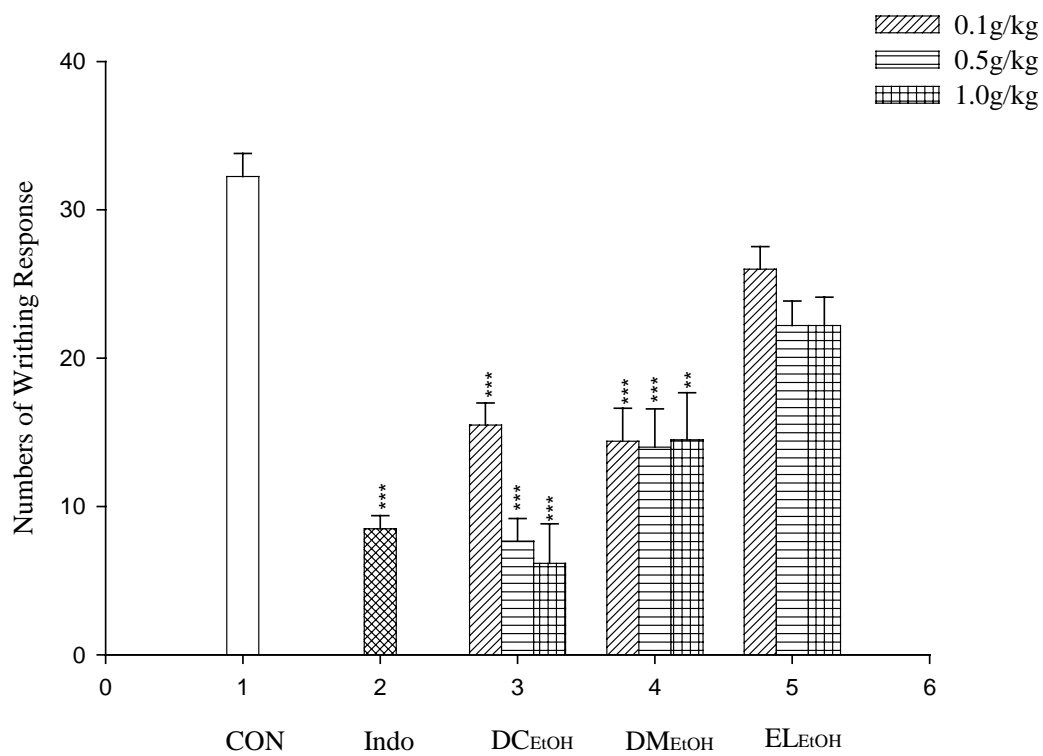| (g)	(mg)	(%)	(%) ( )
0.1025	2.3069	2.31	0.36
0.1014	2.2402	2.24	0.20
0.1007	1.1757	1.18	0.15

Fig. 5 The anti-nociceptive effect of the Indo, DCEtOH, DMEtOH, and ELEtOH on the acetic acid-
induced writing response in mice. Value are expressed as mean ± S.E.M.(n = 6). **p
< 0.01, ***p < 0.001 as compared with the control group (One-Way ANOVA followed
by Scheffe's multiple range test). CON: the normal control group. Indo: indomethacin group.
DCEtOH: ethanol extract of *D. crumenatum*. DMEtOH: ethanol extract of *D. moniliforme*.
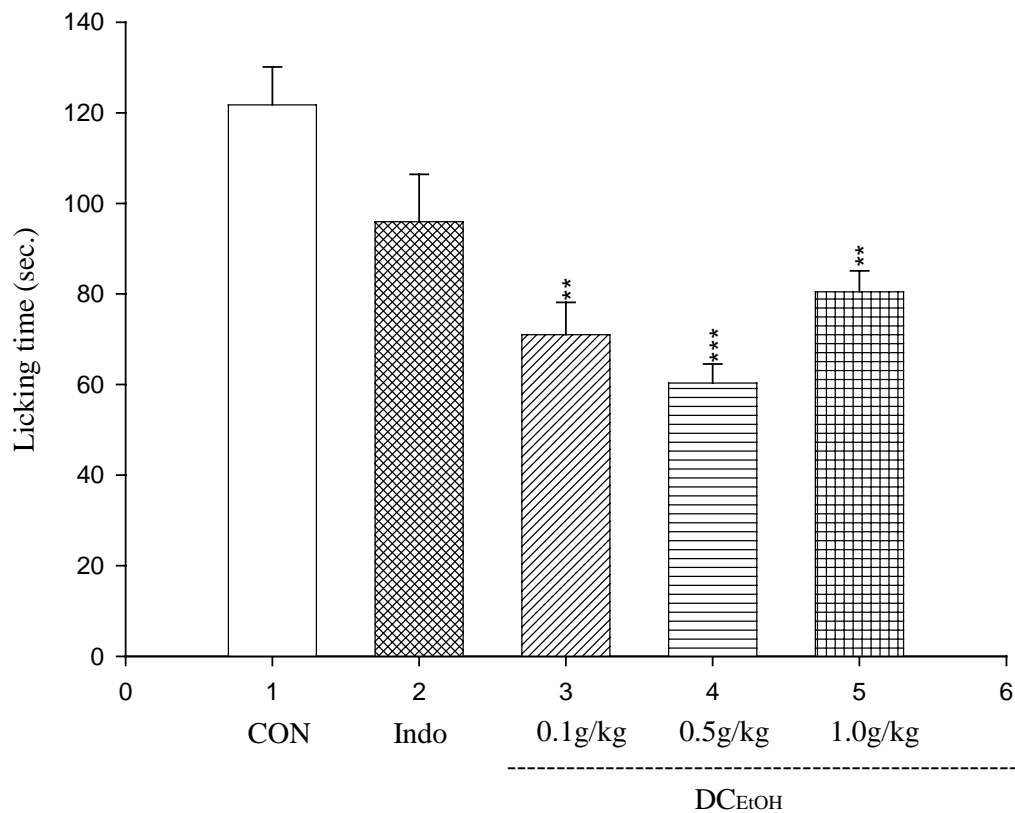ELEtOH: ethanol extract of *E. lonchophylla*.

Fig. 6 The anti-nociceptive effect of the Indo and DC$_{EtOH}$ on the early phase of the formalin-induced nociception in mice. Value are expressed as mean ± S.E.M.(n = 6). **p < 0.01, ***p < 0.001 as compared with the control group (One-Way ANOVA followed by Scheffe's multiple range test). The abbrev. is the same as Fig.5.
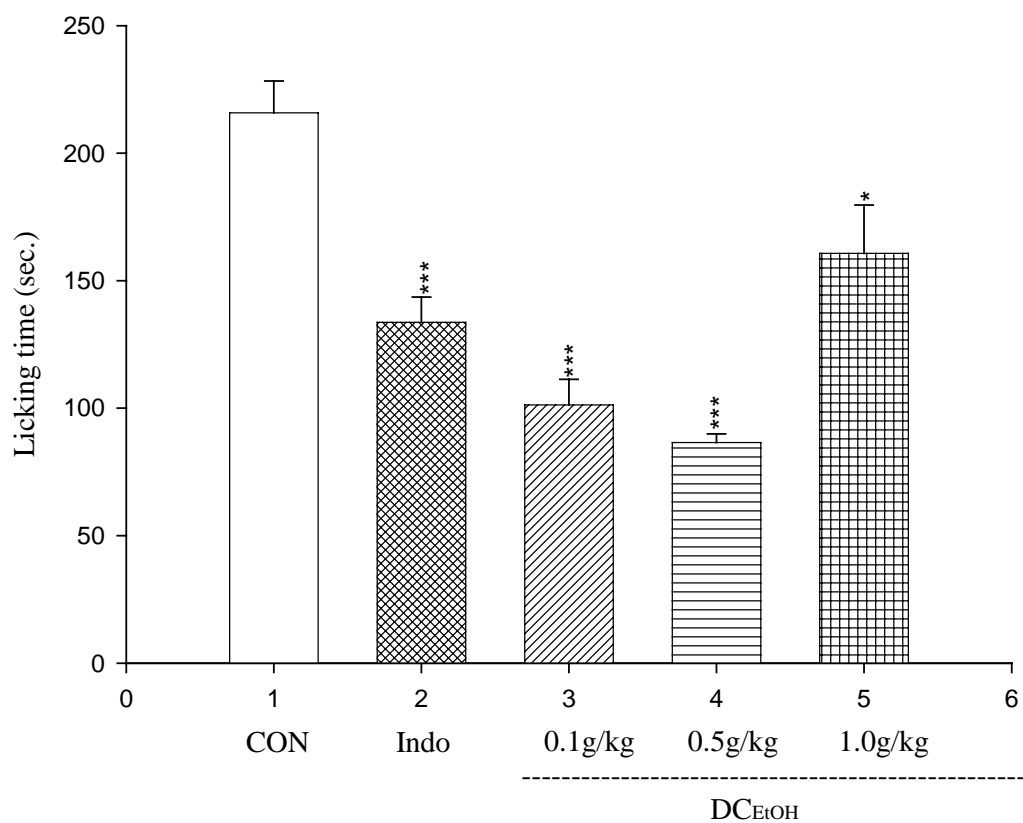
Fig. 7 The anti-nociceptive effect of the Indo and DC$_{EtOH}$ on the late phase of the formalin-induced nociception in mice. Value are expressed as mean ± S.E.M.(n = 6). *p < 0.05, ***p < 0.01, ***p < 0.001 as compared to control group (One-Way ANOVA followed by Scheffe's multiple range test). The abbrev. is the same as Fig.5.
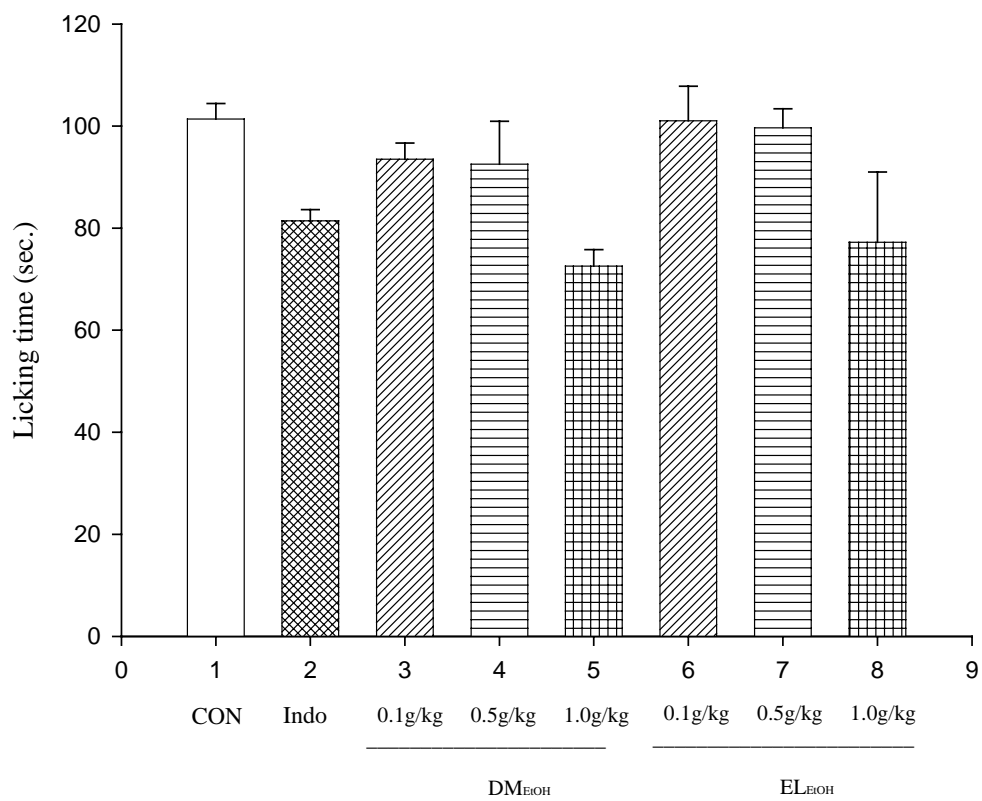
Fig. 8 The anti-nociceptive effect of the Indo and DM$_{EtOH}$, EL$_{EtOH}$ on the early phase
of the formalin-induced nociception in mice. Value are expressed as mean ±
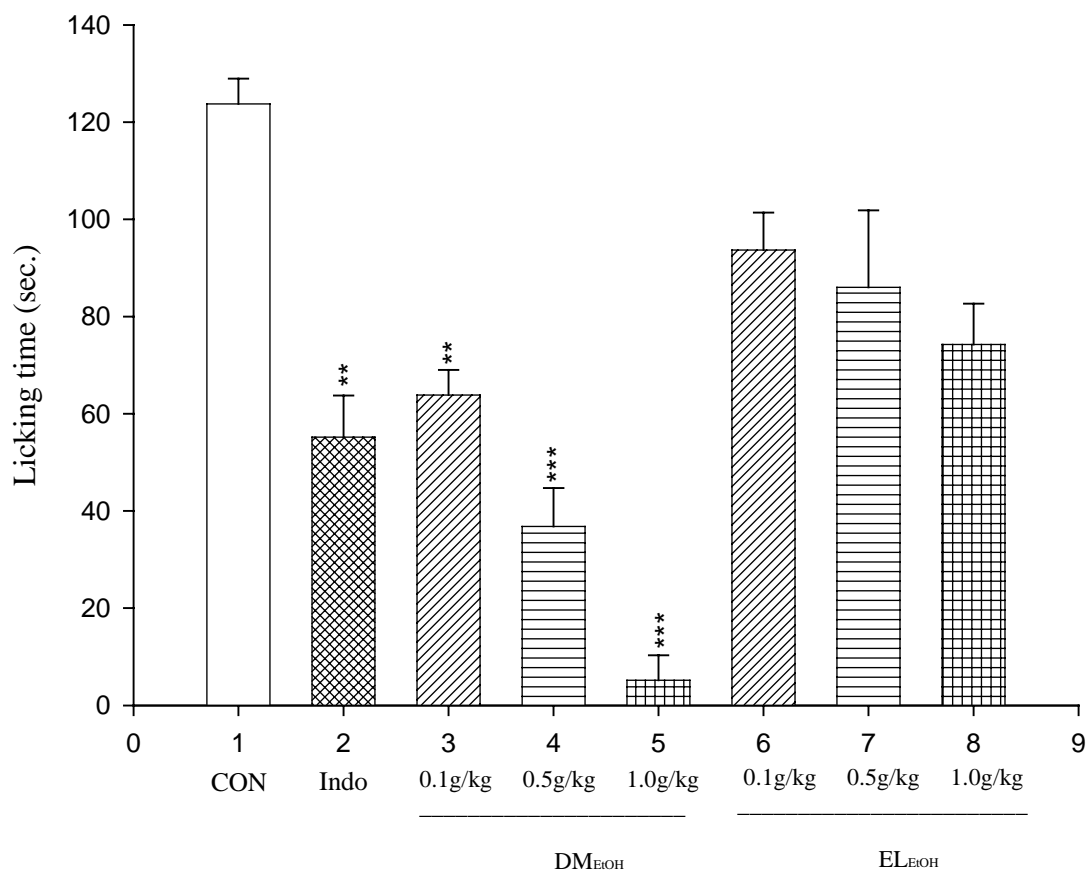S.E.M.(n = 6). The abbrev. is the same as Fig.5.

Fig. 9 The anti-nociceptive effect of the Indo and DM$_{EtOH}$, EL$_{EtOH}$ on the late phase of the formalin-induced nociception in mice. Value are expressed as mean ± S.E.M.(n = 6). **$p < 0.01$, ***$p < 0.001$ as compared with the control group (One-Way ANOVA followed by Scheffe's multiple range test). The abbrev. is the same as Fig.5.

Fig. 10 The effect of the Indo and DC_EtOH on the λ-carrageenan-induced hind
        paw edema in mice. Change in volume with respect to the mean basal value
        (milliliter) 1 hour after intraplantar injection of λ-carrageenan. Value are
        expressed as mean ± S.E.M. (n = 6~8). $**p < 0.01$, $***p < 0.001$ as
        compared with the control group (One-Way ANOVA followed by Scheff's
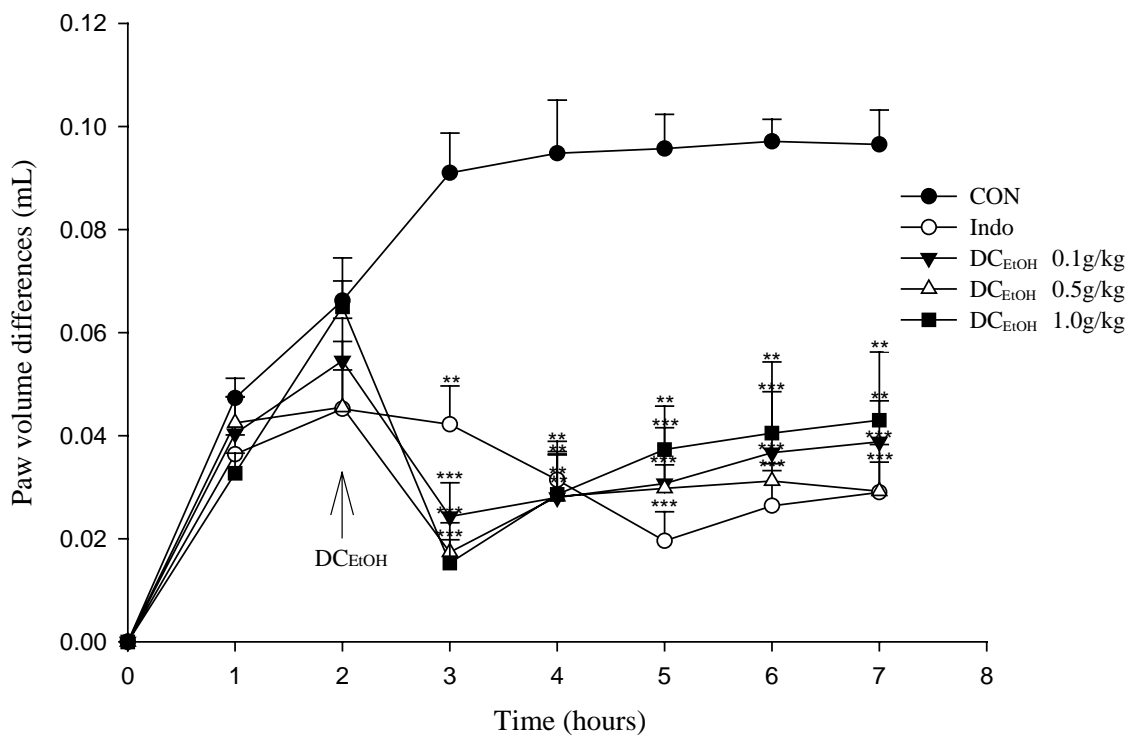   multiple range test). The addrev. is the same as Fig.5.

Fig. 11 The effect of the Indo and DM$_{EtOH}$ on the -carrageenan-induced hind
paw edema in mice. Change in volume with respect to the mean basal value
(milliliter) 1 hour after intraplantar injection of -carrageenan. Value are
expressed as mean ± S.E.M. (n = 6~8) . **$p < 0.01$, ***$p < 0.001$ as
compared with the control group(One-Way ANOVA followed by Scheff's
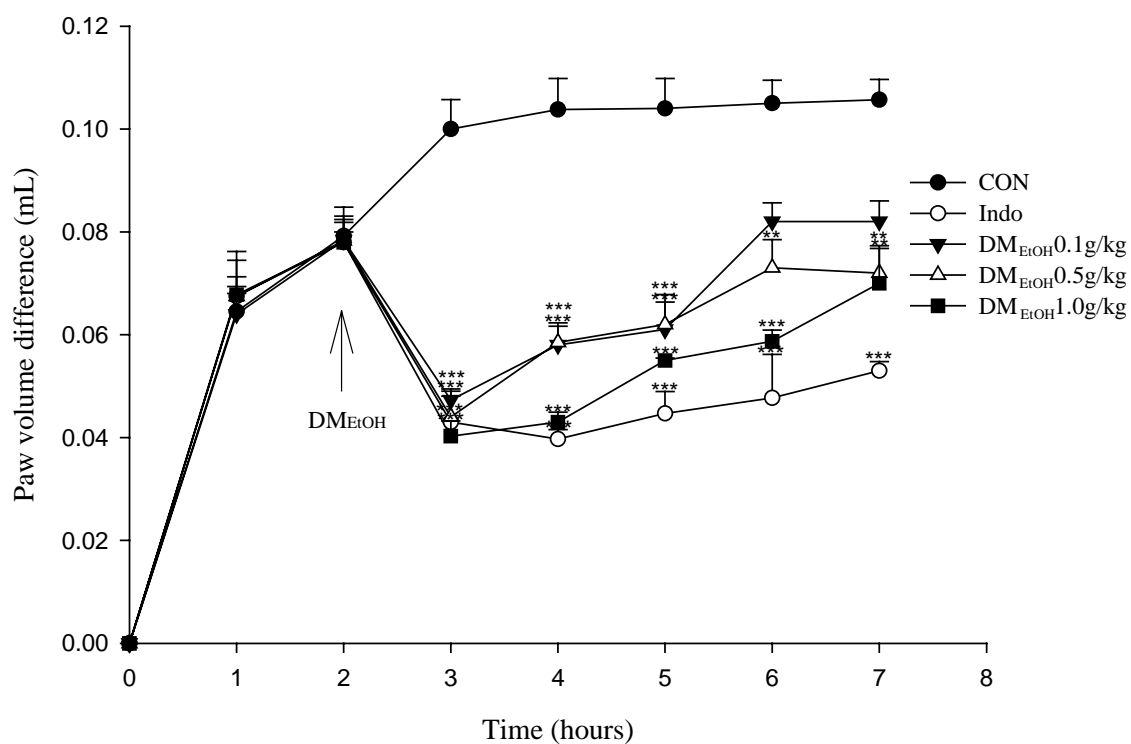multiple range test). The abbrev. is the same as Fig.5.

Fig. 12 The effect of the Indo and EL$_{EtOH}$ on the -carrageenan-induced hind paw edema in mice. Change in volume with respect to the mean basal value (milliliter) 1 hour after intraplantar injection of -carrageenan. Value are expressed as mean ± S.E.M. (n = 6~8). **$p < 0.01$, ***$p < 0.001$ as compared with the control group(One-Way ANOVA followed by Scheff's multiple range test). The abbrev. is the same as Fig.5.
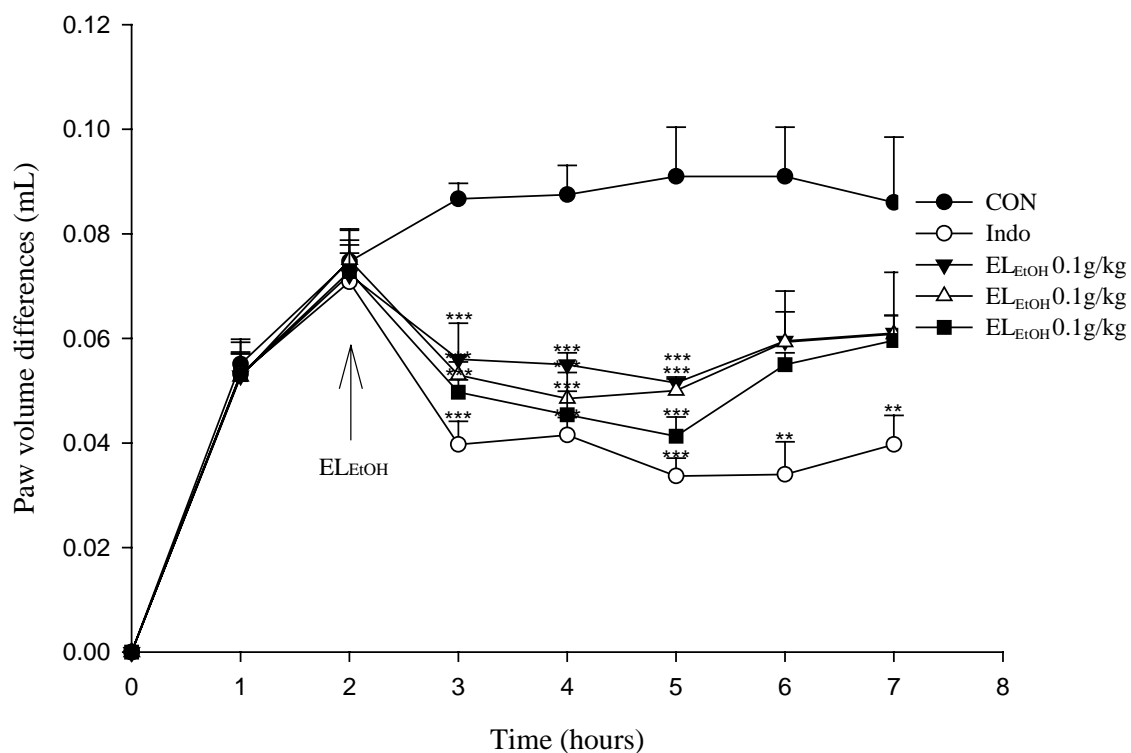
Table 3 Effect of DC$_{EtOH}$ on hepatic SOD, GSH-Rx and GSH-Px activities.

Parameter	Dose (mg/kg)	superoxide dismutase (Units/mg protein)	glutathione reductase (Units/mg protein)	glutathione peroxidase (Units/mg protein)
Groups				
Control		19.64 ± 0.47	0.045 ± 0.004	0.88 ± 0.048
Indo	20	21.26 ± 0.78	0.049 ± 0.004	1.57 ± 0.153***
DC$_{EtOH}$	100	22.46 ± 0.49	0.052 ± 0.005	1.32 ± 0.044**
	500	18.69 ± 0.56	0.047 ± 0.005	1.20 ± 0.045*
	1000	25.07 ± 1.69**	0.057 ± 0.005	1.20 ± 0.022*

Each value represented as mean ± S.E.M. (n=6). *p <0.05, **p <0.01, ***p <0.001 as compared with the control group.

Table 4 Effect of DM$_{EtOH}$ on hepatic SOD, GSH-Rx and GSH-Px activities.

Parameter	Dose (mg/kg)	superoxide dismutase (Units/mg protein)	glutathione reductase (Units/mg protein)	glutathione peroxidase (Units/mg protein)
Groups				
Control		18.02 ± 0.94	0.063 ± 0.008	0.90 ± 0.062
Indo	20	20.38 ± 0.96	0.065 ± 0.003	1.27 ± 0.142
DM$_{EtOH}$	100	19.58 ± 0.71	0.061 ± 0.005	0.96 ± 0.058
	500	21.26 ± 0.79	0.058 ± 0.003	1.19 ± 0.108
	1000	16.74 ± 1.09	0.076 ± 0.009	2.89 ± 0.148***

Each value represented as mean ± S.E.M. (n=6). ***p <0.001 as compared with the control group.

Table 5 Effect of EL$_{EtOH}$ on hepatic SOD, GSH-Rx and GSH-Px activities.

Parameter	Dose (mg/kg)	superoxide dismutase (Units/mg protein)	glutathione reductase (Units/mg protein)	glutathione peroxidase (Units/mg protein)
Groups				
Control		22.35 ± 0.23	0.138 ± 0.01	1.06 ± 0.005
Indo	20	19.30 ± 0.65	0.146 ± 0.01	1.20 ± 0.060
EL$_{EtOH}$	100	33.77 ± 1.76***	0.168 ± 0.03	1.16 ± 0.149
	500	30.23 ± 1.29***	0.157 ± 0.02	1.69 ± 0.155*
	1000	36.52 ± 0.81***	0.124 ± 0.01	2.02 ± 0.182**

Each value represented as mean ± S.E.M. (n=6). *p <0.05, ***p <0.001 as compared with the control group.