Table 1. Effect of technical mancozeb on indicators of liver function in male Wistar rats (Data expressed as mean ± SE)

Indicator	Experimental period (day)											
	14				21				28			
	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg
ALT	35.62	84.66	46.08	52.86	31.20	59.28	54.96	46.38	43.68	40.56	54.02	50.10
(U/L)	± 2.85	±11.79**	±1.35*	± 2.67**	±1.60	±7.64*	±4.44**	±7.75	±7.64	±4.51	±8.17	±4.19
AST	90.86	74.21	82.11	95.26	96.75	72.63	95.26	105.00	100.72	68.55	54.15	123.29
(U/L)	±6.27	±4.94**	±1.77*	±5.85	±2.13	±7.62*	±7.05	±10.90	±6.67	±7.83*	±4.04***	±11.19
ALP	213.73	192.59	272.66	266.03	204.22	85.54	164.96	282.37	194.92	206.70	277.81	207.47
(U/L)	±31.21	±19.82	±30.62	±32.74	±7.79	±4.52**	±14.84**	±42.64*	±1.24	±22.83	±5.02***	±4.54
AChE	123.92	112.42	175.87	180.56	121.3	140.52	168.63	183.11	128.29	127.75	200.57	235.91
(U/L)	±6.32	±16.28	±12.12*	±19.12*	±10.06	±12.55	±16.48	±8.35**	±4.71	±6.32	±12.64**	15.27***
T. protein	5.07	7.83	3.39	3.18	4.02	10.36	2.96	3.30	6.25	7.43	8.27	7.33
(gm/dl)	±0.46	±0.53*	±0.85*	±0.24*	±0.46	±0.80**	±0.22	±0.44	±0.75	±0.83	±0.69	±0.062
Albumin	2.18	5.61	3.31	3.09	2.35	7.55	2.79	2.99	2.18	7.35	6.29	5.16
(gm/dl)	±0.18	±0.61**	±0.45	±0.14	±0.18	±0.52**	±0.45	±0.47	±0.18	±0.71***	±0.51***	±0.79*
Glucose	119.07	106.23	100.75	94.98	107.68	132.20	147.06	131.14	115.37	108.53	100.65	84.14
(mg/dl)	±6.78	±8.95	±9.74	±3.44**	±4.55	±11.84	±8.14**	±13.85	±10.16	±5.76	±9.55*	±3.51*

*,**,*** Significant difference at $p < 0.05$, $p < 0.01$ and $p < 0.001$; respectively

Table 2. Effect of formulated mancozeb (Anadol Gold, 80% WP) on indicators of liver function in male Wistar rats (Data expressed as mean ± SE)

Indicator	Experimental period (day)											
	14				21				28			
	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg
ALT	42.34	27.44	27.01	28.74	30.11	29.79	26.28	21.44	26.82	20.20	23.29	36.81
(U/L)	±2.72	±3.85*	±4.86*	±3.08*	±6.09	±2.42	±3.93	±3.35	±5.95	±2.11	±2.11	±2.36
AST	89.05	71.41	123.27	148.88	99.51	97.67	117.81	113.20	100.66	103.23	110.61	124.71
(U/L)	±5.68	±8.36	±21.06	±5.31***	±3.69	±10.26	±4.73	±7.64	±2.85	±7.58	±5.26	±13.42
ALP	258.47	249.91	214.43	159.24	273.14	226.59	199.06	196.85	271.05	149.14	123.29	123.91
(U/L)	±18.45	±25.87	±15.39	±6.18***	±16.54	±22.45	±18.82*	±13.65**	±11.77	±24.60**	±8.35	±5.64***
AChE	116.25	131.89	187.03	169.94	147.23	144.36	227.50	144.87	126.47	144.36	195.79	162.24
(U/L)	±7.41	±4.42	±12.42**	±8.25*	±11.73	±12.73	±15.27**	±6.57	±13.98	±5.46	±15.35*	±8.51
T. protein	7.60	5.542	5.89	6.74	7.51	6.47	8.18	6.43	7.82	6.55	7.45±	6.33
(gm/dl)	±0.88	±0.65	±0.75	±0.61	±0.19	±0.61	±0.59	±0.54	±0.92	±0.47	0.65	±0.21
Albumin	5.71	3.32	5.38	4.13	5.45	4.49	4.91	5.25	5.15	3.72	4.61	4.62
(gm/dl)	±0.46	±0.41**	±0.38	±0.23*	±0.48	±0.21	±0.39	±0.43	±0.66	±0.61	±0.43	±0.13
Glucose	96.41	124.39	130.75	122.17	98.88	115.31	112.79	98.41	96.53	127.08	153.61	151.91
(mg/dl)	±9.64	±9.34	±3.85	±9.59	±6.60	±3.69	±3.55	±5.85	±1.38	±6.02**	±9.07***	±7.41***

* , ** and *** Significant difference at $p < 0.05$, $p < 0.01$ and $p < 0.001$; respectively.

Table 3. Effect of mancozeb (technical and formulated) on lipid profile in plasma of male Wistar rats (Data expressed as mean ± SE)

Treatment	Parameter	Experimental period (day)											
		14				21				28			
		0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg
Mancozeb (technical, 85%)	T. lipids	60.30	51.30	83.70	47.50	50.90	65.00	43.20	66.80	49.30	44.60	44.20	42.60
	(mg/dl)	±2.90	±2.90	±5.30**	±1.80**	±4.80	±3.30*	±1.80	±2.30	±4.10	±2.40	±0.70	±3.70
	T. cholestrol	73.77	128.70	116.36	132.01	69.01	47.79	129.41	159.10	57.72	86.58	70.48	117.70
	(mg/dl)	±8.08	±12.29*	±8.67*	±15.78*	±5.03	±3.38*	±5.59***	±12.47***	±4.88	±1.00**	±1.29	±3.01***
	Triglyceride	69.26	47.99	52.66	53.05	71.62	59.51	86.58	86.34	64.54	44.67	71.81	47.10
	(mg/dl)	±1.67	±7.13*	±6.90*	±5.13*	±7.93	±7.72	±11.29	±8.97	±4.99	±3.62*	±14.01	±6.04
Anadol gold (80%, WP)	T. lipids	65.75	19.95	14.55	16.45	77.95	10.35	17.20	11.45	79.95	28.05	42.65	32.30
	(mg/dl)	±6.12	±2.00***	±2.20***	±1.95***	±6.35	±1.40***	±1.90***	±1.55***	±4.65	±2.35***	±7.15**	±3.10***
	T. cholestrol	49.19	21.97	38.93	33.63	68.94	38.33	63.25	58.85	50.05	51.74	43.12	67.13
	(mg/dl)	±1.24	±2.38***	±1.84**	±1.31***	±4.94	±4.50**	±4.16	±5.71	±2.53	±2.22	±1.64	±4.98*
	Triglyceride	52.58	36.31	58.18	71.26	72.44	50.24	38.09	50.88	75.68	46.35	65.13	79.53
	(mg/dl)	±6.33	±5.73	±7.47	±3.92*	±10.63	±4.99	±5.74*	±3.37	±5.43	±10.24	±5.05	±10.04

* , ** and *** Significant difference at $p < 0.05$, $p < 0.01$ and $p < 0.001$; respectively.

Table 4. Effect of technical and formulated mancozeb on indicators of kidney function in male Wistar rats (Data expressed as mean ± SE)

Treatment	Indicator	Experimental period (day)											
		14				21				28			
		0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg	0	125 mg/Kg	250 mg/Kg	500 mg/Kg
Mancozeb (technical, 85%)	Urea (mg/dl)	25.36 ±0.87	24.92 ±1.33	23.91 ±0.49	21.08 ±0.32**	27.14 ±0.81	22.54 ±0.93	10.94 ±1.38**	25.30 ±0.28	26.41 ±0.51	25.46 ±1.17	13.21 ±1.03***	16.22 ±1.09***
	Creatinine (mg/dl)	0.24 ±0.03	0.08 ±0.00***	0.19 ±0.02	0.41 ±0.03**	0.26 ±0.02	0.034 ±0.02	0.09 ±0.01***	0.19 ±0.02	0.26 ±0.02	0.18 ±0.02	0.29 ±0.02	0.24 ±0.03
Anadol gold (80%, WP)	Urea (mg/dl)	26.72 ±1.16	41.17 ±2.90***	45.49 ±1.02***	54.96 ±1.49***	28.06 ±1.05	34.21 ±2.99	37.69 ±2.29**	35.47 ±1.95*	21.19 ±2.79	31.97 ±1.72***	43.85 ±1.72***	36.19 ±0.85**
	Creatinine (mg/dl)	0.61 ±0.00	0.61 ±0.05	1.43 ±0.06***	0.88 ±0.09*	0.95 ±0.04	1.02 ±0.06	1.09 ±0.04*	1.16 ±0.07*	0.77 ±0.07	1.43 ±0.06***	1.09 ±0.07*	1.35 ±0.08***

* , ** and *** Significant difference at $p < 0.05$, $p < 0.01$ and $p < 0.001$; respectively.