

Objective 2: To evaluate the responses of cannabis extract for the treatment of EAC cells induced cancer

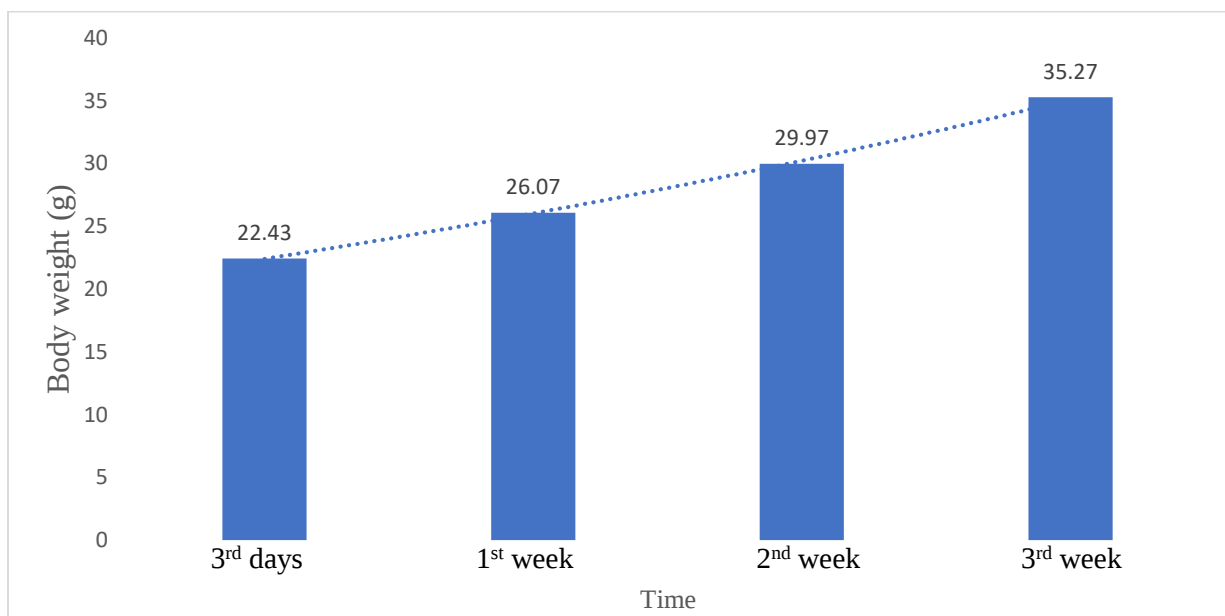
Mice were divided into seven groups for this purpose. Three different concentrations of doses of cannabis extract were used to treat the EAC-inoculated mice. Mice were divided according to the dose concentration that was injected intraperitoneally into the mice. Dose concentrations were 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice. T0 denoted for control, T1 for 5mg/kg, T2 for 10mg/kg, and T3 for 15mg/kg by mice body weight.

Group 1: Control group of mice

4.2.1.1 Body weight Measurement of albino mice

The measurement of the body weight of albino mice is given in figure no. 39. There were no significant variations ($p < 0.05$) observed among the groups on the 3rd day, 1st week, 2nd week, and 3rd week of observation. Increasing the observation periods also gradually increased the body weight of albino mice.

Figure 39: Body weight measurement of albino mice.



4.2.2 Biochemical profile

4.2.2.1 RBS

The RBS test results of albino mice are given in table no. 15. No significant variations ($p < 0.05$) were observed among the observation groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($5.83 \pm 0.47 \text{ mmol/L}$) in the 3rd week was not significantly varied ($p < 0.05$) to the 3rd days, 1st, and 2nd week of observation respectively.

4.2.2.2 Serum Creatinine

The serum creatinine test results of albino mice are given in table no. 15. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($0.37 \pm 0.03 \text{ mg/dl}$) in 1st week was not significantly varied ($p < 0.05$) to the 3rd days, 2nd, and 3rd weeks of observation respectively.

4.2.2.3 SGPT

The SGPT test results of albino mice are given in table no. 15. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, the 1st, 2nd, and 3rd week. The highest result ($42.67 \pm 0.88 \text{ U/L}$) in 3rd week was not significantly varied ($p < 0.05$) to the 3rd day, 1st week, and 3rd week of observation respectively.

4.2.2.4 SGOT

The SGOT test results of albino mice are given in table no. 15. No significant variation ($p < 0.05$) was observed among the groups on the 3rd days, 1st, 2nd, and 3rd week. The highest result ($88.02 \pm 2.52 \text{ U/L}$) in 3rd week was not significantly varied ($p < 0.05$) to the 3rd day, 1st week, and 3rd week of observation respectively.

4.2.2.5 Alkaline phosphate

The alkaline phosphate test results of albino mice are given in table no. 15. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($187.33 \pm 6.74 \text{ mg/dl}$) in 3rd week was significantly varied ($p < 0.05$) to the 3rd day, 1st, and 2nd week of observation respectively.

4.2.2.6 Serum cholesterol

The serum cholesterol test results of albino mice are given in table no.15. No significant variations ($p<0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($130.33\pm10.33\text{mg/dl}$) in 1st week was not significantly varied ($p<0.05$) to the 3rd days, 2nd and 3rd week of observation respectively.

4.2.2.7 Serum Triglyceride

The serum triglyceride test results of albino mice are given in table no. 15. No significant variations ($p<0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($178\pm33.4\text{mg/dl}$) on the 3rd day was no significantly varied ($p<0.05$) to the 1st, 2nd and 3rd week of observation respectively.

4.2.2.8 Serum Uric acid

The serum uric acid test results of albino mice are given in table no. 15. No significant variations ($p<0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week. The highest result ($7.00\pm0.17\text{mg/dl}$) in the 2nd week was significantly varied ($p<0.05$) to the 3rd days, 1st and 3rd week of observation respectively.

Table 15: Biochemical test results of the control group of mice

Parameters	Period of observation				P-value
	3 rd days	1st week	2nd week	3rd week	
RBS (mmol/L)	5.10 ± 0.21	4.80 ± 0.91	4.43 ± 0.61	5.83 ± 0.47	0.23
Creatinine (mg/dl)	0.23 ± 0.02	0.37 ± 0.03	0.23 ± 0.03	0.27 ± 0.07	0.41
SGPT (U/L)	32.21 ± 0.66	24.33 ± 1.06	23.33 ± 1.85	42.67 ± 0.88	0.31
SGOT (U/L)	17.22 ± 3.21	23.00 ± 7.50	59.67 ± 1.45	88.02 ± 2.52	0.33
Alkaline phosphatase (U/L)	67.33 ± 3.21	85.22 ± 6.17	22.31 ± 2.21	187.33 ± 6.74	0.09
Cholesterol (mg/dl)	120 ± 1.22	130.33 ± 10.3	124.00 ± 1.53	127.33 ± 3.38	0.55
TG (mg/dl)	178 ± 33.4	114.67 ± 11.1	146.00 ± 13.8	102.00 ± 16.70	0.07
Uric Acid (mg/dl)	6.1 ± 0.22	4.90 ± 0.29	7.00 ± 0.17	5.87 ± 1.39	0.82

The values are Mean $\pm$ SE. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, NS= non-significant, p-value= probability value.

4.2.1.2 Hematological profile

4.2.1.2.1 Hb

Hemoglobin test results of albino mice are given in table no. 16. No significant ($p < 0.05$) variations were observed on the Hb test compared to the 3rd days, 1st, 2nd, and 3rd-week mice respectively. The Highest result ($14.26 \pm 0.63 \text{ mg/dl}$) in 2nd week was not significantly varied ($p < 0.05$) to the 3rd days, 1st and 3rd week of observation.

4.2.1.2.2 RBC count

The total RBC count test results of albino mice are given in table no. 16. No significant ($p < 0.05$) variations were observed among the groups on the 3rd day, 1st, 2nd, and 3rd-week mice respectively. The highest result ($4.50 \pm 0.85 \times 10^6/\text{cmm}$) on the 2nd week was significantly varied ($p < 0.05$) to the 3rd days, 1st and 3rd week of observation of albino mice observation groups.

4.2.1.2.3 WBC count

The total WBC count and differential WBC count are given in table 16. No significant ($p < 0.05$) variations were observed on the 3rd day, 1st, 2nd, and 3rd-week mice respectively. The highest result ($6.11 \pm 0.90 \times 10^3/\text{cmm}$) in the 2nd week was not significantly varied ($p < 0.05$) to the 3rd days, 1st and 3rd weeks of observation of albino mice observation groups.

4.2.1.2.4 Platelet count

The results of the platelet count of the control group of mice are given in table no. 16. There were no significant variations ($p < 0.05$) observed among the groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 16: Hematological test results of the control group of mice.

Parameters	Period of observation				P-value
	3 rd day	1 st week	2 nd week	3 rd week	
Hb (g/dl)	13.89±0.33	14.10±0.61	14.26±0.63	14.20±0.15	0.43
RBC(10 ⁶ /cmm)	3.50±0.22	4.41±0.84	4.50±0.85	4.47±0.79	0.33
WBC(10 ³ /cmm)	5.60±0.49	5.70±0.20	6.11±0.90	5.93±0.85	0.12
Neutrophil (%)	45.12±0.42	52.22±0.39	58.09±0.67	57.03±0.84	0.09
Lymphocyte(%)	54.22±0.22	44.08±0.57	41.02±0.45	41.09±0.22	0.54
Eosinophil(%)	1.89±0.67	1.80±0.88	2.89±0.09	2.33±0.34	0.60
Basophile(%)	0.89±0.01	0.67±0.12	0.88±0.03	0.97±0.01	0.72
Monocyte(%)	0.88±0.2	1.07±0.04	1.06±0.2	3.59±0.32	0.07
Platelet(10 ⁵ /cmm)	4.40±0.55	4.65±0.60	5.52±0.311	6.27±1.64	0.12

The values are Mean±SE. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

Group 2: Inoculated only EAC cells no treatment was provided

Mice have inoculated only EAC cells. There was no treatment provided. During this period normal diet and an adequate amount of water was provided. Mice were divided into four groups,

4.2.2.1 Body weight measurement

The effects of body weight on EAC-induced cancer mice are shown in figure 37. Significant variations ($p < 0.05$) were observed among the groups on the 3rd week of the observation group. Increasing the observation periods also gradually increased the body weight of albino mice.

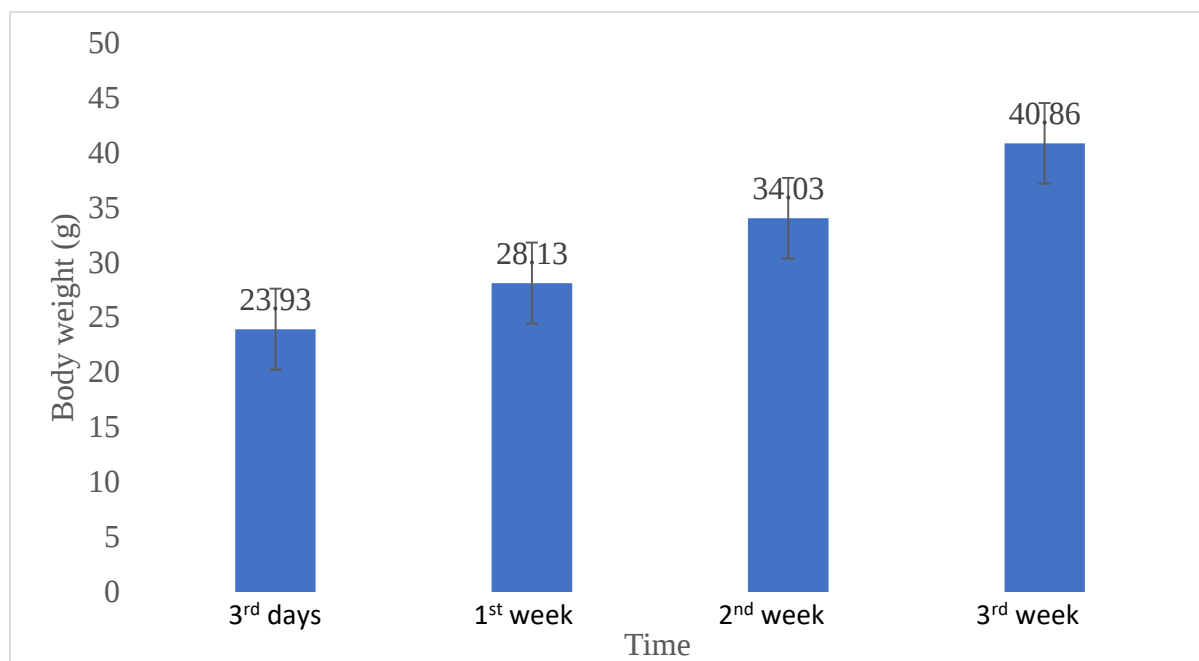


Figure 40: The effects of body weight on EAC-induced cancer in albino mice

4.2.2.2 Biochemical profile

4.2.2.2.1 RBS

The effects of EAC-induced cancer on albino mice on RBS are given in table no. 17. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and

3rd week respectively. The highest result ($5.83 \pm 0.47 \text{ mmol/L}$) on the 3rd day was not significantly varied ($p < 0.05$) to other groups respectively.

4.2.2.2.2 Serum Creatinine

The effects of EAC-induced cancer on albino mice on serum creatinine are given in table no. 17. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The highest result ($0.23 \pm 0.02 \text{ mg/dl}$) on the 3rd day was not significantly varied ($p < 0.05$) to other groups respectively.

4.2.2.2.3 SGPT

The effects of EAC-induced cancer on albino mice on SGPT are given in table no. 17. Significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The highest result ($343.16 \pm 38.85 \text{ U/L}$) on the 2nd week was significantly varied ($p < 0.05$) to the 3rd day, 1st, and 3rd week respectively.

4.2.2.2.4 SGOT

The effects of EAC-induced cancer on albino mice on SGOT are given in table no. 17. Significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The Highest result ($436.00 \pm 67.42 \text{ U/L}$) on the 3rd week was significantly varied ($p < 0.05$) to the 3rd day, 1st, and 3rd week respectively.

4.2.2.2.5 Alkaline phosphatase

The effects of EAC-induced cancer on albino mice on alkaline phosphatase are given in table no. 17. Significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The Highest result ($508.33 \pm 168.66 \text{ U/L}$) on the 3rd week was significantly varied ($p < 0.05$) to the 3rd day, 1st, and 3rd week respectively.

4.2.2.2.6 Serum Cholesterol

The effects of EAC-induced cancer on albino mice on serum cholesterol are given in table no. 17. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day,

1st, 2nd, and 3rd week respectively. The Highest result (172.34±12.37mg/dl) on the 3rd week was not significantly varied (p<0.05) to the 3rd day, 1st, and 3rd week respectively.

4.2.2.2.7 Serum Triglyceride

The effects of EAC-induced cancer on albino mice on serum triglyceride are given in table no. 17. Significant variations (p<0.05) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The Highest result (191.67±9.70mg/dl) on the 1st week was significantly varied (p<0.05) to the 3rd day, 1st, and 3rd week respectively.

4.2.2.2.8 Serum Uric acid

The effects of EAC-induced cancer on albino mice on serum uric acid are given in table no. 17. Significant variations (p<0.05) were observed among the groups on the 3rd day, 1st, 2nd, and 3rd week respectively. The Highest result (23.37±2.63mg/dl) on the 3rd week was significantly varied (p<0.05) to the 3rd day, 1st, and 3rd week respectively.

Table 17: Biochemical Effects of EAC-induced Cancer on albino mice

Parameters	Period of observation				p-value
	3 rd day	1st week	2nd week	3rd week	
RBS (mmolL ⁻¹)	5.83± 0.47	4.80± 0.91	4.43± 0.61	5.01± 0.17	0.21
Creatinine (mg/dl)	0.23± 0.02	0.20± 0.03	0.21± 0.03	0.23± 0.02	0.80
SGPT (U/L)	32.21± 0.66 ^a	318.33± 25.34 ^b	343.16± 38.85 ^c	331.67± 37.88 ^b	0.04
SGOT (U/L)	59.67± 1.45 ^a	350.33± 35.34 ^{bc}	220.00± 11.23 ^b	436.00± 67.42 ^c	0.01
Alkaline phosphatase (U/L)	22.31± 2.21 ^a	229.10± 3.92 ^b	432.22± 6.21 ^c	508.33± 168.66 ^d	0.01
Cholesterol (mg/dl)	124.00± 1.53	136.27± 12.08	149.22± 20.20	172.34± 12.37	0.97
TG (mg/dl)	146.00± 13.85 ^a	191.67± 9.70 ^b	149.33± 24.84 ^a	161.33± 12.22 ^{ab}	0.05
Uric Acid (mg/dl)	4.90± 0.29 ^a	15.43± 2.54 ^{bc}	11.10± 2.40 ^b	23.37± 2.63 ^c	0.03

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.2.3 Hematological profile

4.2.2.3.1 Hb

The effects of EAC-induced cancer on albino mice on HB are given in table no. 18. No significant ($p<0.05$) variations were observed among the groups of 3rd day, 1st, 2nd, and 3rd week respectively. The highest value of hemoglobin was ($14.30\pm0.99\text{mg/dl}$) in the 2nd week, and the lowest value was (13.89 ± 0.33) on the 3rd day of mice observation groups.

4.2.2.3.2 RBC count

The effects of EAC-induced cancer on albino mice on RBC count are given in table no. 18. No significant ($p<0.05$) variations were observed among the groups of 3rd day, 1st, 2nd, and 3rd week respectively. The highest value of RBC was ($6.27\pm0.42\times10^6/\text{cmm}$) in the 3rd week and the lowest value was ($5.1\pm0.84\times10^6/\text{cmm}$) on the 3rd day of mice observation groups.

4.2.2.3.3 Total WBC count and differential WBC count

The effects of EAC-induced cancer on albino mice on total WBC count and differential WBC count are given in table no. 18. Significant differences ($p<0.01$) were observed between the groups of 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest result of WBC was significantly ($p<0.001$) varied on the 2nd week ($96.47\pm3.29\times10^3/\text{cmm}$) compare to the 3rd day, 1st week, and 3rd week respectively. The test results of neutrophil count of EAC-induced cancer mice were significantly varied ($p<0.001$) for all groups of mice. The highest results were significantly ($p<0.001$) different in the 3rd week ($92.03\pm0.84\%$) to the 3rd days, 1st week and 2nd week of observation. The test results of lymphocyte count of EAC-induced cancer mice were significantly varied ($p<0.05$) in all groups of observation. The highest results were significantly ($p<0.05$) different on the 3rd days ($48.22\pm0.22\%$) to the 2nd week and 3rd weeks of observation. The test results of monocyte, eosinophil, and basophil count of EAC-induced cancer mice were not significantly varied ($p<0.05$) in all groups of observation.

4.2.2.3.4 Total platelet count

The results of the platelet count test for induced EAC-induced cancer are given in table 18. There were no significant varied ($p < 0.05$) in all treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 18: Hematological effects of EAC-induced cancer on albino mice

Parameters	Period of observation				P-value
	3 rd days	1 st week	2 nd week	3 rd week	
%Hb	13.89±0.33	14.02±0.33	14.30±0.99	14.11±0.33	0.22
RBC	5.1±0.84	5.6±1.37	5.93±1.44	6.27±0.42	0.42
WBC	5.93±0.85 ^a	85.07±22.50 ^b	96.47±3.29 ^c	70.76±4.07 ^b	0.002
Neutrophil	48.33±0.42 ^a	62.43±0.39 ^b	80.22±0.67 ^c	92.03±0.84 ^d	0.001
Lymphocyte	48.22±0.22 ^c	30.08±0.57 ^{bc}	16.02±0.45 ^b	6.09±0.22 ^a	0.02
Eosinophil	2.19±0.67	6.80±0.88	2.89±0.09	1.33±0.34	0.35
Basophile	0.89±0.01	0.67±0.12	0.88±0.03	0.97±0.01	0.10
Monocyte	0.37±0.02	0.27±0.04	0.26±0.02	0.19±0.01	0.22
Platelets	6.27±1.64	6.06±1.60	5.94±1.83	7.12±0.87	0.99

The values are Mean±SE, ^{abcd} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.2.4 Hematological study

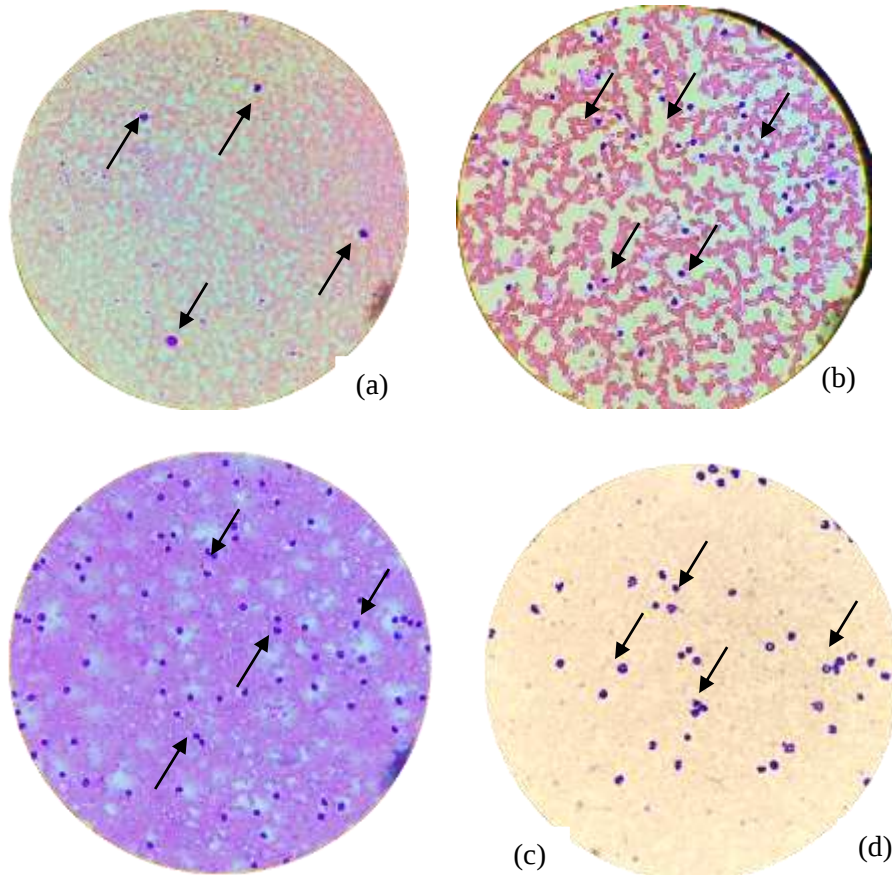


Figure 41: The images show the effects of WBC count on EAC-induced cancer in albino mice, Hematological slide observation at (a) control, (b) 1st week, (c) 2nd week, (d) 3rd week. Slide observes under microscope 400x view. The marking area indicates that the WBC counting increased with the time of EAC inoculation.

4.2.2.5 Cytopathological study of ascetic fluid

Fluid was collected from the abdominal place. H&E dyes were used for microscopic observation. Cellular morphology changes found carcinoma-type cells, the marking area indicates the carcinoma-type cells on it.

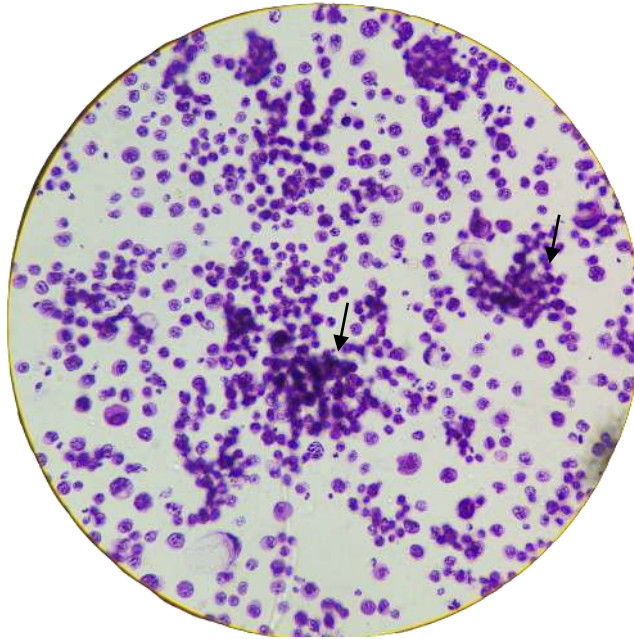


Figure 42: The effects of cytological changes due to EAC-induced cancer in albino mice. For cytopathological observation use a light microscope 400X view.

4.2.2.6 Histopathological study of tumor

Ascetic fluid was detected in mice 14 days after EAC inoculation. With this, one or more tumors are found in the mice. Tumor size and weight increased when mice were observed 21 days after EAC inoculation. On the 21st day, the amount of ascetic fluid also increased significantly.

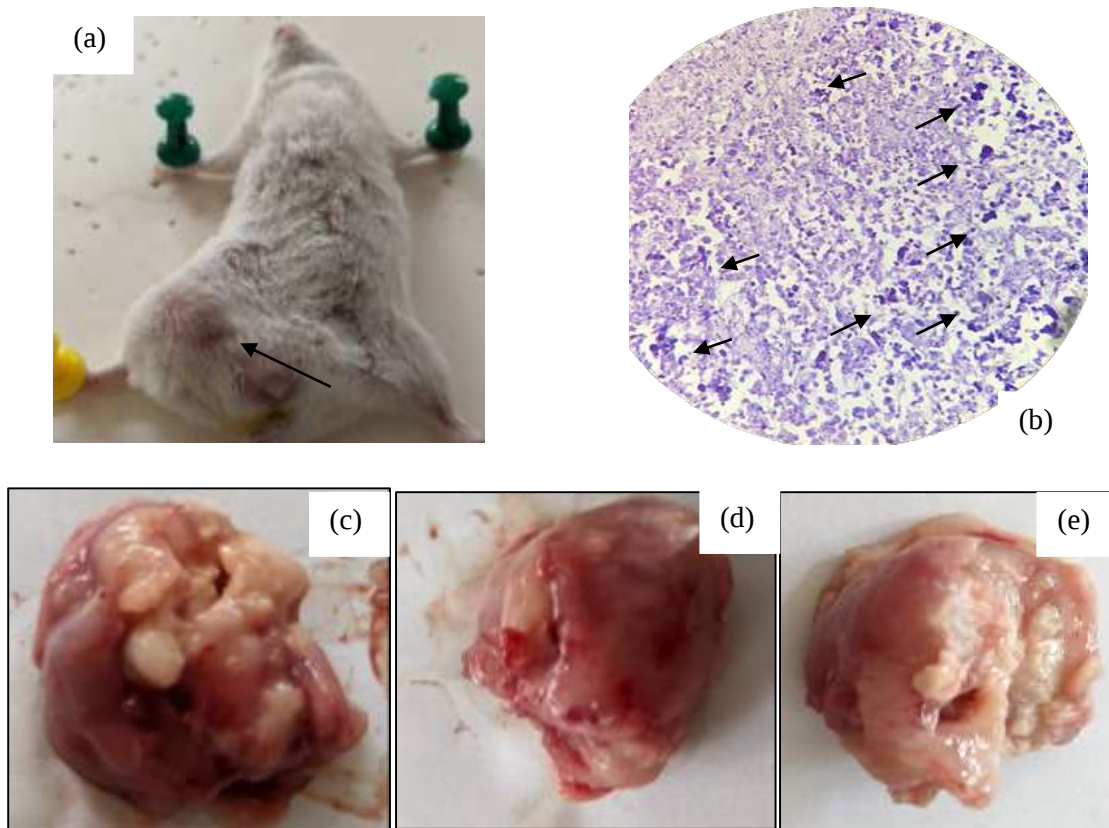


Figure 43: The images show the effects of cellular changes that occur due to EAC-induced cancer in albino mice. For histopathological observation (a) indicate the area of tumor formation, (b) indicate the sarcoma cancer cell under 400x microscopic view, (c), (d) and (e) photo represent tumors that was produced by EAC induced cells on mice.

Group 3: Cytotoxic agent was used for treatment purposes

Ifosfamide is a chemotherapeutic agent chemically related to nitrogen mustards and a synthetic analog of cyclophosphamide. It is active as an alkylating agent and an immunosuppressive agent. In this group, EAC-inoculated mice were treated with this chemotherapeutic agent in three different concentrations. Mice were divided into four groups; one group was control. Other three groups of mice treatment with ifosfamide at 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice.

4.2.3.1 Body weight observation

The effects of the cytotoxic agent on body weight in EAC-inoculated mice are shown in table 19. No significant variations ($p < 0.05$) were observed among the groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 19: Effects of cytotoxic agent on body weight of albino mice

Time interval	Treatment groups				P-value
	T0 (g)	T1 (g)	T2 (g)	T3 (g)	
3 rd day	23.36 ±0.85	23.60±1.30	24.76±0.93	23.91±0.56	0.77
1 st week	25.00±1.19	24.03±0.63	26.36±1.22	25.13±0.62	0.11
2 nd week	28.33±1.39	27.90±0.66	28.73±0.76	28.32±0.51	0.34
3 rd week	30.83±1.26	29.43±0.83	30.10±0.06	32.14±0.30	0.15

The values are Mean±SE. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.3.2 Biochemical profile

4.2.3.2.1 RBS

The effects of the cytotoxic agent on RBS are presented in table 20. There were no significant variations ($p < 0.05$) were observed compared to the other treatment group of mice. The highest result ($6.03 \pm 1.18 \text{ mmolL}^{-1}$) was observed in the 1st week and T2

treatment group and the lowest result ($3.33 \pm 0.67 \text{ mmolL}^{-1}$) was observed in the 3rd week and T1 treatment group of mice.

Table 20: Effects of cytotoxic agent on RBS

Time interval	Treatment groups				p-value
	T0 (mmolL ⁻¹)	T1 (mmolL ⁻¹)	T2 (mmolL ⁻¹)	T3 (mmolL ⁻¹)	
3 rd day	5.26±0.47	5.67±0.33	4.83±1.01	4.70±0.89	0.36
1 st week	5.73±0.20	4.83±0.16	6.03±1.18	5.43±0.98	0.43
2 nd week	4.53±0.72	4.60±0.87	4.60±0.31	4.33±0.33	0.04
3 rd week	5.40±0.40	3.33±0.67	4.70±0.35	4.36±0.31	0.57

The values are Mean±SE. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.2 Serum creatinine

The effects of the cytotoxic agent on serum creatinine are shown in table 21. The serum creatinine level was significantly ($p < 0.05$) different among the treatment groups on the 3rd days, but no significant ($p < 0.05$) variation was observed in the 1st, 2nd, and 3rd weeks of observation. After 3rd day of injection, the serum creatinine level was significantly ($p < 0.05$) highest in T1 ($0.30 \pm 0.00 \text{ mg/dl}$) compared to other groups of mice. But no significant ($p < 0.05$) variations were observed among the other treatment groups in the 1st, 2nd, and 3rd week respectively.

Table 21: Effects of cytotoxic agent on serum creatinine

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	0.20±0.05 ^b	0.30±0.00 ^c	0.13±0.03 ^a	0.27±0.4 ^{bc}	0.05
1 st week	0.27±0.03	0.23±0.03	0.24±0.04	0.23±0.03	0.89
2 nd week	0.27±0.03	0.30±0.05	0.27±0.03	0.13±0.03	0.08
3 rd week	0.30±0.05	0.37±0.03	0.23±0.9	0.27±0.03	0.45

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.3 SGPT

The effects of the cytotoxic agent on SGPT are shown in table 22. SGPT results differ significantly ($P<0.05$) among the different treatment groups of mice on 3rd day compared to the other group of mice. The highest result of SGPT ($187.33\pm6.99\text{U/L}$) in the T3 treatment group was significantly varied ($p<0.05$) to the lowest result ($22.33\pm0.93\text{U/L}$) in the T0 treatment group on the 3rd day. But no significant ($p<0.05$) variation was observed among the other treatment groups at the 1st, 2nd, and 3rd week of treatment respectively.

Table 22: Effects of cytotoxic agent on SGPT

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	25.33 ± 1.84^a	74.67 ± 2.99^b	77.33 ± 3.33^b	187.33 ± 6.99^c	0.01
1 st week	51.33 ± 2.98	98.00 ± 2.44	90.00 ± 2.10	97.00 ± 3.05	0.21
2 nd week	30.52 ± 1.31	64.33 ± 2.70	90.00 ± 3.45	75.33 ± 2.51	0.49
3 rd week	22.33 ± 0.93	73.00 ± 2.50	87.67 ± 2.85	119.00 ± 3.75	0.32

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.4 SGOT

The effects of the cytotoxic agent on SGPT are shown in table 23. SGOT result differed significantly ($P=0.05$) among the different treatment groups of mice on the 3rd day compared to the other groups of mice. The highest result of SGOT ($150.00\pm20.64\text{U/L}$) on the T3 treatment group was significantly varied ($p=0.05$) to the lowest result ($31.67\pm8.11\text{U/L}$) on the T0 treatment group in 1st week, but there was no significant difference found in T0 and T1 treatment groups of mice. No significant ($p<0.05$) variations were observed among the other treatment groups at the 1st, 2nd, and 3rd weeks of treatment respectively.

Table 23: Effects of cytotoxic agent on SGOT

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	31.67±1.11 ^a	41.33±1.51 ^a	69.33±2.20 ^b	150.00±4.64 ^c	0.05
1 st week	34.00±0.77	100.00±2.02	104.33±2.97	131.00±3.92	0.49
2 nd week	34.00±0.43	77.00±2.04	100.67±4.24	47.33±2.85	0.15
3 rd week	29.00±0.65	93.67±2.20	55.33±1.94	90.67±2.17	0.21

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.5 Alkaline Phosphatase

There were no (P<0.05) significant difference values observed in any group of mice compared to all groups of mice. The effects of cytotoxic agent injection of alkaline phosphatase are given in table no 24. The highest value of alkaline phosphatase was obtained in 1st week of T3 (150.00±20.64U/L) and the lowest value of alkaline phosphatase was obtained on the 3rd day T0 (84.33±1.89U/L) among the treatment groups of mice.

Table 24: Effects of cytotoxic agent on alkaline phosphatase

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	84.33±1.89	117.6±3.28	154.0±5.96	112.0±2.58	0.08
1 st week	87.00±1.94	104.33±2.85	117.00±3.58	122.67±3.66	0.12
2 nd week	54.66±0.67	90.33±4.36	80.33±1.19	90.33±2.92	0.32
3 rd week	107.00±0.88	137.67±3.77	119.67±3.19	135.67±2.06	0.28

The values are Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.6 Serum Cholesterol

The effects of cytotoxic agents on serum cholesterol are given in table no 25. Significant results (p<0.05) were observed in the 2nd and 3rd-week treatment, but there was no significant variation observed in the 3rd-day and 1st-week mice treatment groups. The highest value of serum cholesterol level was significantly varied (p<0.05) obtained in 2nd

week of the T2 (177.33±9.33mg/dl) and the lowest value of serum cholesterol was obtained on the 3rd day T1 (111.00±11.84 mg/dl). After 3rd week of injection, serum cholesterol level was significantly (p<0.05) highest in T2 (199.67±15.49mg/dl) compared to other treatment groups of mice.

Table 25: Effects of cytotoxic agent on serum cholesterol

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	109.33±1.75	143.00±2.35	172.66±2.68	141.00±2.16	0.16
1 st week	127.67±2.21	102.00±2.04	146.33±2.58	122.67±2.38	0.24
2 nd week	120.33±2.17 ^b	111.00±1.84 ^a	177.33±2.33 ^c	127.00±2.00 ^b	0.004
3 rd week	116.00±2.50 ^a	100.00±1.92 ^a	199.67±2.99 ^c	133.00±2.84 ^b	0.004

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.7 Serum Triglyceride

The effects of cytotoxic agents on serum triglyceride are given in table no. 26. There was no significant (p<0.05) variations observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of serum triglyceride was (133.33±2.05mg/dl) in T3 at 3rd day of observation and the lowest value was (101.33±1.58mg/dl) in T1 at 2nd week of observation.

Table 26: Effects of cytotoxic agent on serum triglyceride

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	122.00±1.59	131.00±2.95	127.67±3.51	133.00±2.05	0.11
1 st week	114.67±1.80	125.33±3.20	120.00±2.04	133.00±3.00	0.37
2 nd week	107.67±1.97	101.33±1.58	132.33±2.17	127.67±2.06	0.12
3 rd week	116.00±2.29	137.00±1.58	130.00±2.51	126.33±1.70	0.40

The values are Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.2.8 Serum uric acid

The effects of cytotoxic agents on serum uric acid are given in table no 27. The highest result of uric acid was (11.36 ± 2.87 mg/dl) in the 1st week T2 treatment group and the lowest result was (6.33 ± 0.70 mg/dl) in the 3rd week T1 treatment group of mice. No significant difference ($p < 0.05$) was observed compared to the treatment group of mice on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 27: Effects of cytotoxic agent on serum uric acid

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	8.10 ± 2.11	9.96 ± 1.73	9.70 ± 1.19	8.60 ± 0.32	0.70
1 st week	10.64 ± 0.67	11.36 ± 2.87	10.76 ± 3.68	9.92 ± 1.53	0.98
2 nd week	8.13 ± 0.86	9.33 ± 0.28	7.33 ± 1.46	9.17 ± 1.01	0.48
3 rd week	7.66 ± 1.35	6.33 ± 0.70	7.20 ± 1.41	7.70 ± 1.17	0.82

The values are Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.3.3 Hematological profile

4.2.3.3.1 Hb

The effects of cytotoxic agents on Hb are given in table no. 28. No significant ($p < 0.05$) variations were observed among the treatment groups on the 3rd day, 1st week, 2nd week and 3rd week respectively. The highest value of hemoglobin was (15.10 ± 0.10 mg/dl) in the 2nd-week T1 group and the lowest value was (13.67 ± 0.33 mg/dl) on the 3rd day of the T0 group of mice. There was no significant ($p < 0.05$) difference observed among the other treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

4.2.3.3.2 RBC count

The effects of cytotoxic agents on RBC count are given in table no. 28. The RBC test result was significantly ($p < 0.05$) different among the treatment group on the 3rd week, but no significant ($p < 0.05$) variation was observed on the 3rd day, 1st week, and 2nd week. After

3rd week of ifodex injection. RBC count was significantly ($p<0.05$) highest in T1 ($5.93\pm0.52\times10^6/\text{cmm}$) compare to other groups of mice.

4.2.3.3.3 WBC count

The effects of cytotoxic agents on WBC count are given in table no. 28. Significant differences ($p<0.01$) were observed in the 3rd day, 1st week, 2nd week, and 3rd week respectively. Gradually decrease the values of WBC, when increasing the doses concentration of ifodex cytotoxic drug. After 3rd day of ifodex injection, the WBC count was significantly ($p<0.01$) highest in T0 ($5.60\pm0.20\times10^2/\text{cmm}$) and lowest in T2 ($1.29\pm0.08\times10^2/\text{cmm}$) treatment groups. No significant variation was observed in the T1, T2, and T3 treatment groups of mice. After 1st week of ifodex injection, the WBC count was significantly ($p<0.01$) highest in T0 ($5.70\pm0.20\times10^2/\text{cmm}$) and lowest in T2 ($1.23\pm0.03\times10^2/\text{cmm}$) treatment groups. Significant variation was observed in the T0, and T1 treatment groups of mice. After 2nd week of ifodex injection, the WBC count was significantly ($p<0.01$) highest in T0 ($6.10\pm0.10\times10^2/\text{cmm}$) and lowest in T2 ($1.56\pm0.16\times10^2/\text{cmm}$) treatment groups. No significant variation was observed in the T1, T2, and T3 treatment groups of mice. After 3rd week of ifodex injection, the WBC count was significantly ($p<0.01$) highest in T0 ($5.93\pm0.85\times10^2/\text{cmm}$) and lowest in T3 ($1.52\pm0.23\times10^2/\text{cmm}$) treatment groups. No significant variation was observed in the T2, and T3 treatment groups of mice, but ($p<0.01$) significant variation was observed in the T0, and T1 treatment groups of mice.

4.2.3.3.4 Platelet count

The effects of cytotoxic agents on platelet count are given in table no. 28. There were no significant variations ($p<0.05$) observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 28: Effects of cytotoxic agent on hematological profile

Parameters	Time interval	Treatment groups				P-value
		T0	T1	T2	T3	
Hb (mg/dl)	3 rd day	13.67±0.33	13.67±0.33	13.93±0.5	13.76±0.7	0.98
	1 st week	14.33±0.67	13.97±0.54	14.36±0.3	14.30±0.3	0.93
	2 nd week	14.00±0.57	15.10±0.10	14.67±0.3	14.27±0.6	0.41
	3 rd week	14.33±0.33	13.80±0.80	14.80±0.4	14.50±0.2	0.58
RBC (×10 ⁶ /cmm)	3 rd day	4.03±0.33	4.60±0.30	5.23±0.39	4.63±0.32	0.35
	1 st week	5.33±0.33	4.70±0.35	5.00±0.55	4.34±0.33	0.18
	2 nd week	4.67±0.33	5.68±0.33	4.93±0.07	4.70±0.91	0.33
	3 rd week	4.23±0.33 ^a	5.93±0.52 ^a	4.13±0.13 ^a	4.33±0.33 ^b	0.02
WBC (10 ³ /cmm)	3 rd day	5.60±0.49 ^b	2.03±0.40 ^a	1.29±0.08 ^a	1.89±0.22 ^a	<0.01
	1 st week	5.70±0.20 ^c	2.0±0.34 ^b	1.23±0.03 ^a	2.03±0.09 ^b	<0.01
	2 nd week	6.10±0.10 ^b	1.69±0.06 ^a	1.56±0.16 ^a	1.68±0.19 ^a	<0.01
	3 rd week	5.93±0.85 ^c	2.03±0.17 ^b	1.84±0.17 ^a	1.52±0.23 ^a	<0.01
Platelet (10 ⁵ /cmm)	3 rd day	5.10±0.15	4.19±0.23	4.42±0.23	4.03±0.1	0.44
	1 st week	4.25±0.30	4.45±0.82	5.10±1.29	5.62±1.7	0.74
	2 nd week	3.51±0.31	3.45±1.20	4.80±1.05	5.67±0.9	0.32
	3 rd week	5.27±1.64	5.06±1.60	4.94±1.83	4.12±0.8	0.21

The values are Mean±SE and ^{abc} values having different superscripts differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value=probability value.

Group 4: Treatment started after 3 days of EAC inoculation

4.2.4.1 Body weight measurement of albino mice

The effects of cannabis extract on the body weight of mice at 3 days of treatment after EAC inoculation is shown in table 29. The results revealed that body weight was significantly ($P<0.05$) varied among the treatment groups in 3rd week after the cannabis extract injection. The body weight of mice was significantly ($P<0.05$) highest in T2 ($37.10\pm4.46\text{g}$) and lowest in T0 ($30.40\pm0.90\text{g}$) in 3rd week after treatment compared to other treatment groups. No significant differences between the groups of T0, and T1.

Table 29: Effects of cannabis extract on body weight of mice at 3 days treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (g)	T1 (g)	T2 (g)	T3 (g)	
3 rd day	23.96 $\pm$ 0.54	23.63 $\pm$ 0.73	22.03 $\pm$ 2.08	23.21 $\pm$ 0.72	0.77
1 st week	25.63 $\pm$ 0.35	26.03 $\pm$ 1.41	25.26 $\pm$ 0.22	25.53 $\pm$ 0.51	0.11
2 nd week	28.03 $\pm$ 0.70	27.73 $\pm$ 1.44	30.67 $\pm$ 2.56	28.81 $\pm$ 0.99	0.34
3 rd week	30.40 $\pm$ 1.90 ^a	30.70 $\pm$ 1.48 ^a	37.10 $\pm$ 2.46 ^b	35.14 $\pm$ 1.30 ^{ab}	0.04

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.4.2 Biochemical profile

4.2.4.2.1 RBS

The effects of three different concentrations of cannabis extract on RBS results in albino mice are shown in table no. 30. No significant ($p<0.05$) variation was observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of RBS was T0 ($6.21\pm0.23\text{mmolL}^{-1}$) on the 3rd day and the lowest value was T1 ($4.04\pm0.87\text{mmolL}^{-1}$) on the 2nd week of observation. There were no significant ($p<0.05$)

varied results were found among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively.

Table 30: Effects of cannabis extract on RBS at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mmolL ⁻¹)	T1 (mmolL ⁻¹)	T2 (mmolL ⁻¹)	T3 (mmolL ⁻¹)	
3 rd day	6.21±0.23	4.27±0.04	4.80±0.51	4.73±0.82	0.21
1 st week	4.73±0.24	4.25±0.06	5.23±1.08	5.23±0.65	0.43
2 nd week	5.50±0.72	4.04±0.87	4.60±0.31	4.33±0.33	0.08
3 rd week	4.40±0.40	4.33±0.47	5.23±0.65	4.36±0.35	0.17

The values are Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.2 Serum creatinine

The Effects of three different concentrations of cannabis extract on serum creatinine in albino mice are shown in table no. 31. There were no significant ($p<0.05$) variations observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of serum creatinine was T1 (0.39±0.08mg/dl) in the 1st week and the lowest value was T1 (0.17±0.03mg/dl) in the 3rd day of observation.

Table 31: Effects of cannabis extract on serum creatinine at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	0.23±0.06	0.17±0.03	0.21±0.03	0.17±0.033	0.75
1 st week	0.18±0.04	0.39±0.08	0.27±0.03	0.23±0.03	0.09
2 nd week	0.24±0.04	0.34±0.03	0.23±0.03	0.26±0.03	0.24
3 rd week	0.30±0.05	0.13±0.03	0.33±0.06	0.30±0.04	0.08

The values are Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.3 SGPT

The effects of three different concentrations of cannabis extract on SGPT results in albino mice are shown in table 32. After 3rd day of cannabis extract injection, the SGPT result differed significantly ($P<0.05$) among the different treatment groups of mice except for the 1st, 2nd and 3rd weeks of observation. On the 3rd day of observation, mice of the T1 group ($25.33\pm2.96\text{U/L}$) had significantly ($P<0.05$) lower SGPT results than T3 ($99.67\pm27.63\text{U/L}$) but there was no significant difference was found in T0 and T1 group. In the 1st week, 2nd week, and 3rd week of observations, no significant ($P<0.05$) variation was observed among the different treatment groups T0, T1, T2, and T3 respectively.

Table 32: Effects of cannabis extract on SGPT at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	31.67 ± 0.45^a	25.33 ± 0.36^a	99.67 ± 1.63^c	50.33 ± 1.14^b	0.05
1 st week	32.67 ± 0.63	65.44 ± 1.60	95.67 ± 2.49	67.25 ± 1.71	0.40
2 nd week	24.33 ± 0.36	87.33 ± 2.17	90.33 ± 2.44	59.67 ± 1.58	0.39
3 rd week	72.33 ± 1.66	104.33 ± 3.22	93.67 ± 2.85	75.50 ± 1.92	0.45

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.4 SGOT

The effects of three different concentrations of cannabis extract on SGOT results in albino mice are shown in table 33. After 2nd week of cannabis extract injection, the SGOT result differed significantly ($P<0.05$) among the different treatment groups of mice except for the 3rd day, 1st week and 3rd weeks of observation. In the 2nd week after treatment with cannabis extract, mice of the T0 group ($44.67\pm11.41\text{U/L}$) had significantly ($P<0.05$) lower SGOT results than T1 ($125.67\pm41.95\text{U/L}$) but there was no significant difference was found in T3 group. On the 3rd day, 1st week, and 3rd week of mice treatment groups, no significant ($P<0.05$) variation was observed among the four different treatment groups T0, T1, T2, and T3 respectively.

Table 33: Effects of cannabis extract on SGOT at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	83.33±1.21	25.33±0.16	99.67±0.63	50.33±0.34	0.24
1 st week	32.67±0.33	65.44±0.94	95.67±1.49	67.25±0.71	0.11
2 nd week	44.67±1.01 ^a	125.67±1.95 ^c	116.67±2.20 ^{bc}	98.00±1.72 ^b	0.02
3 rd week	39.00±0.21	122.33±1.47	113.67±1.35	134.33±2.49	0.06

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.5 Alkaline phosphatase

The effects of three different concentrations of cannabis extract on alkaline phosphatase results in albino mice are shown in table 34. After 3rd day of cannabis extract injection, alkaline phosphatase results differed significantly ($P<0.01$) among the different treatment groups of mice except for 1st, 2nd and 3rd weeks respectively. On the 3rd day after treatment with cannabis extract, mice of the T0 group (85.33±7.33U/L) had significantly ($P<0.01$) lower alkaline phosphate results than T1 (421.00±48.00U/L). No significant ($P<0.01$) variation was observed among the treatment groups of T2 and T3.

Table 34: Effects of cannabis extract on alkaline phosphatase at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	85.33±2.33 ^a	280.67±8.12 ^b	417.33±16.10 ^c	421.00±18.00 ^c	0.008
1 st week	123.67±3.20	257.00±7.09	289.21±8.90	381.67±12.01	0.10
2 nd week	125.67±3.31	305.67±12.12	243.56±8.67	425.33±14.5	0.27
3 rd week	126.22±3.40	413.67±14.16	217.67±8.71	141.67±4.76	0.27

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.6 Serum Cholesterol

The effects of cannabis extract on serum cholesterol at 3 days of treatment after EAC inoculation are shown in table 35. No significant ($p < 0.05$) variations were observed among any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of serum cholesterol was T3 (184.22 ± 4.51 mg/dl) on the 3rd day, and the lowest value was T3 (123.00 ± 2.52 mg/dl) in the 2nd week of observation.

Table 35: Effects of cannabis extract on serum cholesterol at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	157.67 $\pm$ 4.47	156.67 $\pm$ 4.29	139.33 $\pm$ 3.23	184.22 $\pm$ 5.51	0.42
1 st week	163.33 $\pm$ 7.32	160.33 $\pm$ 6.50	136.67 $\pm$ 4.89	169.87 $\pm$ 7.10	0.69
2 nd week	132.67 $\pm$ 4.58	128.67 $\pm$ 2.95	138.33 $\pm$ 4.07	123.00 $\pm$ 2.52	0.88
3 rd week	152.00 $\pm$ 5.50	156.67 $\pm$ 5.79	137.00 $\pm$ 3.94	176.00 $\pm$ 5.02	0.54

The values are Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.4.2.7 Serum Triglyceride

The effects of cannabis extract on serum triglyceride at 3 days of treatment after EAC inoculation are shown in table 36. After 3rd week of cannabis extract injection, significant ($p < 0.05$) variations were observed among the treatment groups of mice. In the 3rd week after treatment with cannabis extract, mice of the T2 (143.00 ± 13.00 mg/dl) had significantly ($P < 0.05$) lower serum triglyceride results than T0 (173.33 ± 9.90 mg/dl). But there were no significant ($P < 0.05$) variations observed among the treatment groups of T2 and T3. On the 3rd day, 1st week, and 2nd week of observation, no significant ($P < 0.05$) variation was found among the four different treatment groups T0, T1, T2, and T3 respectively.

Table 36: Effects of cannabis extract on serum triglyceride at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	170.00±13.53	178.33±14.44	153.33±10.89	136.33±8.84	0.14
1 st week	163.33±10.02	160.33±9.50	136.67±8.89	169±10.10	0.36
2 nd week	183.33±11.47	171.67±13.98	161.00±14.10	152.33±8.83	0.17
3 rd week	173.33±13.90 ^b	165.33±11.17 ^{ab}	143.00±10.00 ^a	157.83±12.04 ^a	0.02

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value = probability value.

4.2.4.2.8 Serum uric acid

The effects of cannabis extract on serum uric acid at 3 days of treatment after EAC inoculation are given in table no. 37. The serum uric acid result was significantly ($p<0.05$) varied among the treatment group at the 2nd week and 3rd weeks of cannabis extract treatment. But no significant ($p<0.05$) variation was observed on 3rd day, and 1st week of cannabis extract injection groups. In the 2nd week of the treatment group, the highest uric acid test result at T3 (16.63±4.88mg/dl) significantly varied ($p<0.05$) to the T0, and T1 treatment groups of mice. In the 3rd week of the cannabis extract treatment group, the lowest uric acid value in T0 (5.80±0.76mg/dl) had significantly ($p<0.05$) varied to the T1 and T3 treatment groups.

Table 37: Effects of cannabis extract on serum uric acid at 3 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	6.60±0.55	8.2±0.72	8.33±0.33	8.70±.30	0.13
1 st week	6.30±0.81	6.70±0.70	9.13±1.61	9.87±3.00	0.45
2 nd week	5.80±0.76 ^a	6.10±0.58 ^a	9.57±0.97 ^{ab}	16.63±4.88 ^b	0.04
3 rd week	7.17±1.04 ^b	6.00±1.15 ^a	9.67±2.03 ^{bc}	13.67±4.80 ^c	0.05

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.4.3 Hematological profile

4.2.4.3.1 Hb

The effects of cannabis extract on Hb at 3 days of treatment after EAC inoculation is represented in table no. 38. In the 2nd week of observation, hemoglobin test results significantly varied ($p<0.05$) compared to the treatment groups of mice. No significant difference ($p<0.05$) was observed among the groups of 3rd days, 1st week and 3rd-week mice treatment. When the 2nd week of cannabis dose injection, the Hb level was significantly ($p<0.05$) highest in the T1 ($14.76\pm 0.39\text{mg/dl}$) compare to the other groups. Significant differences were observed among the T0 group to T1, T2, and T3 treatment groups.

4.2.4.3.2 RBC count

The effects of cannabis extract on RBC count at 3 days of treatment after EAC inoculation is represented in table no. 38. In the 1st and 2nd week and 3rd weeks of observations, the RBC result differed significantly ($P<0.05$) among the different treatment groups of mice except for 3rd days after treatment with cannabis extract. The highest value in the 1st week was T1 ($4.93\pm 0.07\times 10^6/\text{cmm}$) significantly varied ($p<0.05$) among the treatment groups of T0, T2, and T3. Treatment groups of T0, T2, and T3 were significantly not different from each other. In the 2nd week of observation, RBC test results were significantly ($p<0.05$) varied at highest in T1 ($5.00\pm 0.01\times 10^6/\text{cmm}$) and lowest in T2 ($4.03\pm 0.03\times 10^6/\text{cmm}$). In the 3rd week of observation, the RBC test result was significantly ($p<0.05$) different in T1 ($5.00\pm 0.01\times 10^6/\text{cmm}$) highest value and lowest among the other treatment groups. There was no significant ($p<0.05$) variation on 3rd day of cannabis extract injection into the EAC-induced mice.

4.2.4.3.3 WBC count

The effects of cannabis extract on WBC count at 3 days of treatment after EAC inoculation is represented in table no. 38. There were no significant variations ($p<0.05$) observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value was in T1 ($7.67\pm 0.33\times 10^3/\text{cmm}$) on 3rd day and the lowest value was in T2 ($3.40\pm 0.70\times 10^3/\text{cmm}$) on 3rd week of cannabis extract injection.

4.2.4.3.4 Platelet count

The effects of cannabis extract on platelet count at 3 days of treatment after EAC inoculation is represented in table no. 38. No significant ($p < 0.05$) variations were observed among all treatment groups of mice on the 3rd day, 1st, 2nd and 3rd week respectively. The highest result of platelet count was ($4.50 \pm 0.50 \times 10^5/\text{cmm}$) in the 3rd week T1 treatment group and the lowest result of platelet count was ($2.99 \pm 0.03 \times 10^5/\text{cmm}$) in the 1st week T2 treatment group of mice. No significant variation was observed among any treatment groups at the 3rd day, 1st, 2nd, and 3rd week of cannabis extract treatment.

Table 38: Effects of cannabis extract on hematological profile at 3 days of treatment after EAC inoculation

Parameters	Time interval	Treatment groups				P-value
		T0	T1	T2	T3	
Hb (mg/dl)	3 rd day	14.03 $\pm$ 0.60	13.67 $\pm$ 0.33	14.27 $\pm$ 0.63	14.10 $\pm$ 0.67	0.89
	1 st week	14.97 $\pm$ 0.73	13.96 $\pm$ 0.38	13.67 $\pm$ 0.34	14.30 $\pm$ 0.70	0.14
	2 nd week	13.03 $\pm$ 0.54 ^a	14.76 $\pm$ 0.69 ^b	14.70 $\pm$ 0.30 ^b	14.60 $\pm$ 0.61 ^b	0.04
	3 rd week	13.67 $\pm$ 0.33	14.13 $\pm$ 0.59	14.30 $\pm$ 0.60	14.83 $\pm$ 0.77	0.234
RBC ($\times 10^6/\text{cmm}$)	3 rd day	4.70 $\pm$ 0.35	4.20 $\pm$ 0.20	4.23 $\pm$ 0.25	4.76 $\pm$ 0.39	0.45
	1 st week	4.67 $\pm$ 0.83 ^b	4.93 $\pm$ 0.97 ^b	3.60 $\pm$ 0.30 ^a	4.63 $\pm$ 0.92 ^b	0.04
	2 nd week	4.37 $\pm$ 0.32 ^a	5.00 $\pm$ 0.81 ^b	4.03 $\pm$ 0.30 ^a	4.93 $\pm$ 0.77 ^b	0.008
	3 rd week	4.87 $\pm$ 0.53 ^b	5.00 $\pm$ 0.81 ^b	4.97 $\pm$ 0.63 ^b	4.17 $\pm$ 0.47 ^a	0.002
WBC ($\times 10^3/\text{cmm}$)	3 rd day	5.46 $\pm$ 0.69	7.67 $\pm$ 1.33	7.00 $\pm$ 0.99	6.03 $\pm$ 1.07	0.19
	1 st week	4.83 $\pm$ 0.27	6.67 $\pm$ 0.91	6.30 $\pm$ 0.60	5.01 $\pm$ 0.53	0.83
	2 nd week	4.67 $\pm$ 0.33	5.34 $\pm$ 0.71	4.13 $\pm$ 0.21	6.33 $\pm$ 0.98	1.01
	3 rd week	6.01 $\pm$ 1.01	5.34 $\pm$ 0.99	3.40 $\pm$ 0.70	5.17 $\pm$ 0.80	0.15
Platelet ($\times 10^5/\text{cmm}$)	3 rd day	3.20 $\pm$ 0.41	3.73 $\pm$ 0.26	3.10 $\pm$ 0.11	3.26 $\pm$ 0.35	0.52
	1 st week	3.36 $\pm$ 0.32	3.46 $\pm$ 0.29	2.99 $\pm$ 0.03	3.33 $\pm$ 0.34	0.66
	2 nd week	3.25 $\pm$ 0.25	3.74 $\pm$ 0.26	3.67 $\pm$ 0.33	2.96 $\pm$ 0.14	0.67
	3 rd week	3.27 $\pm$ 0.27	4.50 $\pm$ 0.50	3.67 $\pm$ 0.46	3.33 $\pm$ 0.33	0.29

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.4.4 Mice observations

Mice treated with cannabis early after EAC cell administration did not receive cancer cells. As a result edema or tumor was not formed.

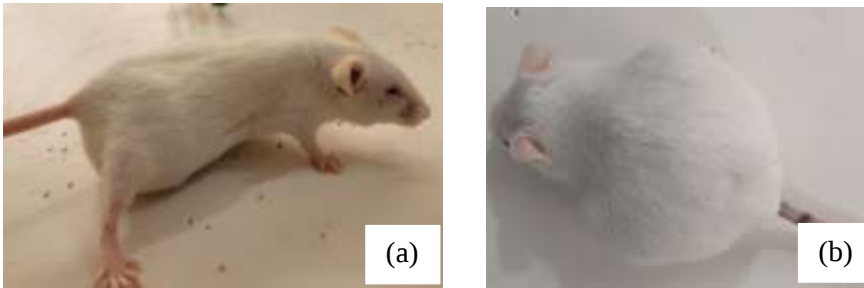


Figure 44: Effects of cannabis extract on mice antitumor potency at 3 days of treatment after EAC inoculation. Image shows (a) at the early stage of the EAC+cannabis extract-providing group and (b) only EAC inoculating mice, no treatment provided. Both pictures were captured after 21 days of EAC inoculation.

Group 5: Treatment started at 7 days after EAC inoculation

Mice in this group were first inoculated with EAC. Seven days after EAC inoculation, three different concentrations of cannabis extract were started to treatment to the EAC-inoculating mice. After 3 days of treatment, the mice were sacrificed. In the same way-one week, two weeks, and three weeks of treatment with cannabis extract mice were sacrificed for observation.

4.2.5.1 Mice body weight measurement

The body weight of albino mice in different treatment groups is shown in table 39. The results revealed that body weight was significantly ($P<0.05$) varied among the treatment groups at the 2nd, and 3rd week after cannabis extract injection. In 2nd week of observation, the body weight of mice was significantly ($P<0.05$) highest in T2 (33.10 ± 1.31) compared to T0, T1, and T3 treatment groups. No significant differences between the groups in T1, and T3. In 3rd week of observation, the body weight of mice was significantly ($P<0.05$) highest in T2 (41.63 ± 1.89) compared to T0, T1, and T3 treatment groups. No significant differences between the groups in T1, and T3.

Table 39: Effects of cannabis extract on body weight of mice at 7days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (g.)	T1 (g.)	T2 (g.)	T3 (g.)	
3 rd day	20.83 $\pm$ 1.15	21.50 $\pm$ 1.37	22.03 $\pm$ 2.08	21.45 $\pm$ 0.81	0.77
1 st week	23.20 $\pm$ 0.63	25.10 $\pm$ 0.41	26.30 $\pm$ 1.61	24.86 $\pm$ 0.68	0.11
2 nd week	25.73 $\pm$ 0.92 ^a	29.90 $\pm$ 0.44 ^b	33.10 $\pm$ 1.31 ^c	29.57 $\pm$ 1.16 ^b	0.04
3 rd week	33.63 $\pm$ 0.95 ^a	38.10 $\pm$ 1.36 ^b	41.63 $\pm$ 1.89 ^c	37.78 $\pm$ 1.36 ^b	0.02

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0 indicates control mice and T1, T2, and T3 indicate 5mg/kg, 10mg/kg, and 15mg/kg (according to treatment provided by body weight of mice) respectively. SE=Standard error of the mean, p-value= probability value.

4.2.5.2 Biochemical profile

4.2.5.2.1 RBS

The effects of cannabis extract on RBS at 7 days of treatment after EAC inoculation are shown in table no. 40. No significant ($p<0.05$) variations were found for the RBS test results compared to all treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of RBS was T3 ($5.73\pm0.33\text{mmolL}^{-1}$) in the 1st week and the lowest value was T1 ($3.10\pm0.30\text{mmolL}^{-1}$) in the 3rd-week observation. There were no significant ($p<0.05$) data varied among the treatment groups (T1, T2, T3, and T4) in 3rd days, 1st week, 2nd week, and 3rd weeks respectively.

Table 40: Effects of cannabis extract on RBS at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mmolL ⁻¹)	T1 (mmolL ⁻¹)	T2 (mmolL ⁻¹)	T3 (mmolL ⁻¹)	
3 rd day	5.02±0.04	3.21±0.21	5.43±0.21	4.88±0.62	0.32
1 st week	5.71±0.26	4.34±0.16	4.20±0.28	5.73±0.33	0.73
2 nd week	5.20±0.90	4.23±0.77	5.60±0.21	5.33±0.23	0.68
3 rd week	3.10±0.30	5.30±0.33	4.21±0.61	5.33±0.55	0.47

The values are Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.2 Serum creatinine

The effects of cannabis extract on serum creatinine at 7 days of treatment after EAC inoculation is shown in table no. 41. In the 3rd week of observations serum creatinine results show significant ($p<0.05$) variation compared to the other treatment groups of mice. In the 3rd week of treatment, the highest value T3 ($0.40\pm0.05\text{mg/dl}$) was significantly ($p<0.05$) varied compared to the other treatment groups of mice. There were no significant ($p<0.05$) differences observed in the 3rd day, 1st week, and 2nd week at given T0, T1, T2, and T3 concentrations respectively.

Table 41: Effects of cannabis extract on serum creatinine at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	0.27±0.03	0.30±0.20	0.27±0.03	0.20±0.06	0.78
1 st week	0.30±0.12	0.33±0.07	0.30±0.05	0.30±0.06	0.99
2 nd week	0.20±0.01	0.33±0.09	0.20±0.05	0.30±0.06	0.49
3 rd week	0.27±0.03 ^a	0.17±0.03 ^a	0.20±0.05 ^a	0.40±0.05 ^b	0.01

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.3 SGPT

The effects of cannabis extract on SGPT at 7 days of treatment after EAC inoculation is shown in table no. 42. There were no significant ($p<0.05$) variations observed in any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of SGPT was (317.67±45.02U/L) at T3 in the 3rd week and the lowest value was (22.33±5.33U/L) at T0 in the 1st week of observation.

Table 42: Effects of cannabis extract on SGPT at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	36.00±0.3	39.67±9.76	33.33±6.91	43.00±11.50	0.88
1 st week	22.33±5.33	51.33±8.54	99.00±22.09	102.67±23.46	0.31
2 nd week	16.67±4.33	72.67±12.1	76.67±17.13	164.67±30.02	0.23
3 rd week	31.33±6.96	135.67±20	155.67±24.95	317.67±45.02	0.29

Values= Mean±SE, T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.4 SGOT

The effects of cannabis extract on SGOT at 7 days of treatment after EAC inoculation is shown in table no. 43. There were no significant ($p<0.05$) variations observed in any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of SGOT was ($829.33\pm96.55\text{U/L}$) at T3 in the 3rd week and the lowest value was ($24.00\pm9.53\text{U/L}$) at T0 in the 3rd day of observation.

Table 43: Effects of cannabis extract on SGOT at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	24.00 $\pm$ 9.53	190.33 $\pm$ 15.35	315.22 $\pm$ 27.56	31.33 $\pm$ 11.67	0.51
1 st week	87.67 $\pm$ 19.41	579.33 $\pm$ 37.04	198.33 $\pm$ 16.19	260.67 $\pm$ 22.85	0.19
2 nd week	24.33 $\pm$ 4.33	305.22 $\pm$ 36.95	660.33 $\pm$ 65.57	653.6 $\pm$ 61.44	0.18
3 rd week	87.00 $\pm$ 11.54	829.33 $\pm$ 96.55	792.67 $\pm$ 81.2	464.33 $\pm$ 24.45	0.41

Values= Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.5 Alkaline phosphatase

The effects of cannabis extract on alkaline phosphatase at 7 days of treatment after EAC inoculation is shown in table no. 44. In the 3rd week of cannabis extract treatment, alkaline phosphate test results significantly varied ($p<0.05$) compared to the different treatment groups of mice. The highest value at T3 ($1626.7\pm381.26\text{U/L}$) significantly varied from the lowest value at T0 ($113.67\pm6.83\text{U/L}$). There were no significant variations ($p<0.05$) observed in any other groups of mice on the 3rd day, 1st week, and 2nd week of treatment respectively.

Table 44: Effects of cannabis extract on alkaline phosphatase at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	82.00±9.45	300.33±38.21	387.67±47.14	622.33±66.76	0.38
1 st week	84.33±9.87	792.33±88.68	662.00±74.96	1400±110.00	0.35
2 nd week	63.00±6.52	992.67±92.57	701.67±83.13	979±86.40	0.17
3 rd week	113.67±10.83 ^a	661.3±79.75 ^b	924.33±84.05 ^{bc}	1626.7±181.26 ^c	0.006

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.5.2.6 Serum Cholesterol

The effects of cannabis extract on serum cholesterol at 7 days of treatment after EAC inoculation is shown in table no. 45. There were no significant ($p < 0.05$) variations observed in any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of serum cholesterol was (183.20±2.52mg/dl) at T3 in the 3rd week and the lowest value was (98.67±0.99mg/dl) at T1 on the 3rd day of observation.

Table 45: Effects of cannabis extract on serum cholesterol at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	112.17±1.27	98.67±0.99	121.33±1.33	122.02±1.28	0.33
1 st week	122.30±1.32	126.33±2.20	136.67±2.89	139.33±2.91	0.77
2 nd week	162.67±1.88	128.67±1.95	133.23±2.07	183.20±2.52	0.56
3 rd week	152.00±1.50	156.67±1.69	137.00±1.14	176.00±2.02	0.34

Values= Mean±SE, T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups respectively. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.8 Serum Triglyceride

The effects of cannabis extract on serum triglyceride at 7 days of treatment after EAC inoculation is shown in table no. 46. There were no significant ($p < 0.05$) variations observed in any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of serum triglyceride was ($177.83 \pm 1.94 \text{ mg/dl}$) at T3 in the 3rd week and the lowest value was ($78.33 \pm 0.44 \text{ mg/dl}$) at T1 on the 3rd day of observation.

Table 46: Effects of cannabis extract on serum triglyceride at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	121.00 $\pm$ 0.51	78.33 $\pm$ 0.44	123.33 $\pm$ 0.89	111.33 $\pm$ 0.49	0.54
1 st week	123.13 $\pm$ 1.32	140.33 $\pm$ 1.53	130.67 $\pm$ 1.89	149.22 $\pm$ 1.61	0.96
2 nd week	163.33 $\pm$ 1.47	155.67 $\pm$ 1.28	121.02 $\pm$ 1.10	132.30 $\pm$ 1.23	0.77
3 rd week	173.33 $\pm$ 1.90	145.03 $\pm$ 1.47	123.00 $\pm$ 1.00	177.83 $\pm$ 1.94	0.07

Values= Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of treatment groups of mice respectively. SE=Standard error of the mean, p-value= probability value.

4.2.5.2.9 Serum uric acid

The effects of cannabis extract on serum uric acid at 7 days of treatment after EAC inoculation is shown in table no. 47. There were no significant ($p < 0.05$) variations observed in any treatment groups on the 3rd day, 1st week, 2nd week, and 3rd weeks respectively. The highest value of serum uric acid was ($13.20 \pm 3.26 \text{ mg/dl}$) at T1 in the 3rd week and the lowest value was ($4.90 \pm 0.83 \text{ mg/dl}$) at T3 in the 2nd week of observation.

Table 47: Effects of cannabis extract on uric acid at 7 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	8.00±1.19	12.17±2.17	6.63±1.02	6.20±0.89	0.17
1 st week	10.67±2.29	10.93±2.32	9.53±1.84	4.96±0.92	0.19
2 nd week	7.92±1.52	14.50±3.72	10.60±2.32	4.90±0.83	0.15
3 rd week	7.53±1.33	13.20±3.26	8.90±1.58	7.73±1.44	0.44

Values= Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups respectively. SE=Standard error of the mean, p-value= probability value.

4.2.5.3 Hematological profile

4.2.5.3.1 Hb

The effects of cannabis extract on Hb at 7 days of treatment after EAC inoculation are given in table no. 48. There were no significant variations ($p < 0.05$) were observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of Hb at T1 (15.01±0.29mg/dl) in the 3rd week of observations and the lowest value was T1 (13.56±0.43mg/dl) in the 1st week of observation.

4.2.5.3.2 RBC count

The effects of cannabis extract on RBC at 7 days of treatment after EAC inoculation are given in table no. 48. No significant ($p < 0.05$) variations were observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of RBC at T1 (5.30±0.01×10⁶/cmm) in the 2nd week of observations and the lowest value was T3 (4.17±0.17×10⁶/cmm) in the 3rd week of observation.

4.2.5.3.3 WBC count

The effects of cannabis extract on WBC at 7 days of treatment after EAC inoculation are given in table no. 48. The results revealed that WBC count was significantly ($P < 0.05$) varied among the treatment groups in the 2nd week and 3rd week after cannabis extract injection. WBC count of mice was significantly ($P < 0.05$) highest in the T1 group at 2nd

(32.07±11.49×10³/cmm) and 3rd (37.93±9.75×10³/cmm) after treatment compared to other treatment groups.

4.2.5.3.4 Platelet count

The effects of cannabis extract on Platelet count at 7 days of treatment after EAC inoculation are given in table no. 48. No significant (p<0.05) variations were compared to all treatment groups of mice on the 3rd days, 1st, 2nd and 3rd week respectively. The highest result of platelet count was (5.27±1.64×10⁵/cmm) in the 3rd week T0 treatment group and the lowest result of platelet count was (3.41±0.98×10⁵/cmm) in the 3rd day T1 treatment group of mice.

Table 48: Effects of cannabis extract on hematological profile at 7 days of treatment after EAC inoculation

Parameters	Time interval	Treatment groups				P-value
		T0	T1	T2	T3	
Hb (mg/dl)	3 rd day	13.93±0.25	14.67±1.33	14.27±0.63	13.70±0.17	0.84
	1 st week	14.22±0.23	13.56±0.43	14.17±0.74	14.10±0.50	0.39
	2 nd week	14.03±0.66	14.66±0.99	14.65±0.34	14.34±0.76	0.25
	3 rd week	14.07±0.50	15.01±0.29	14.34±0.21	14.21±0.23	0.54
RBC (×10 ⁶ /cmm)	3 rd day	4.34±0.30	4.34±0.20	4.43±0.23	4.43±0.28	0.80
	1 st week	4.47±0.35	4.90±0.87	4.60±0.33	4.63±0.32	0.14
	2 nd week	4.37±0.32	5.30±0.01	4.03±0.03	4.93±0.07	0.88
	3 rd week	4.27±0.13	4.30±0.01	4.97±0.23	4.17±0.17	0.42
WBC (×10 ³ /cmm)	3 rd day	4.76±1.06	8.23±2.59	7.50±2.85	8.53±2.78	0.79
	1 st week	4.56±0.34	15.27±5.70	9.02±2.84	13.40±4.70	0.38
	2 nd week	4.83±1.22 ^a	32.07±11.49 ^c	27.00±8.25 ^{bc}	14.70±6.22 ^b	0.04
	3 rd week	6.10±1.90 ^a	37.93±9.75 ^c	23.83±5.11 ^b	23.70±5.11 ^b	0.05
Platelet (×10 ⁵ /cmm)	3 rd day	4.44±1.28	3.41±0.98	4.87±0.11	3.62±0.33	0.87
	1 st week	4.22±0.45	4.05±0.03	4.11±1.03	5.02±1.73	0.77
	2 nd week	4.21±0.51	4.45±1.24	4.44±1.22	4.67±0.21	0.35
	3 rd week	5.27±1.64	5.06±1.60	4.94±1.83	4.12±0.87	0.41

Values= Mean±SE. ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.5.4 Cytopathological study of ascitic fluids

Ascitic fluids were collected after sacrificing the mice. The image shows that carcinoma-type cells were seen under the light microscope 400X view.

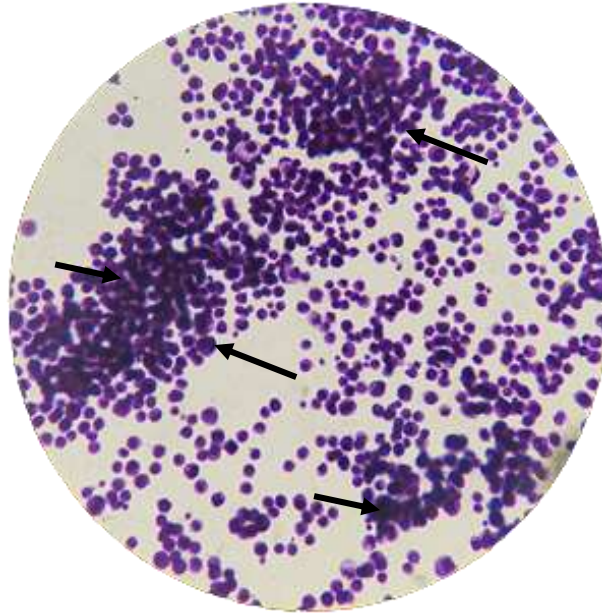


Figure 45: Effects of cannabis extract on cytological changes at 7 days of treatment after EAC inoculation. Mice abdominal fluid cytology, using H & E dyes. Marking areas indicate cancerous cells proliferate vigorously.

4.2.5.5 Histopathological study of main organs and tumor

The main organ was surgically separated from the tumor-forming mice. H & E dyes were used for staining purposes. A Primo starlight microscope was used to observe the slide. Digital cameras have been used to capture the picture that was seen under the light microscope 400x view.

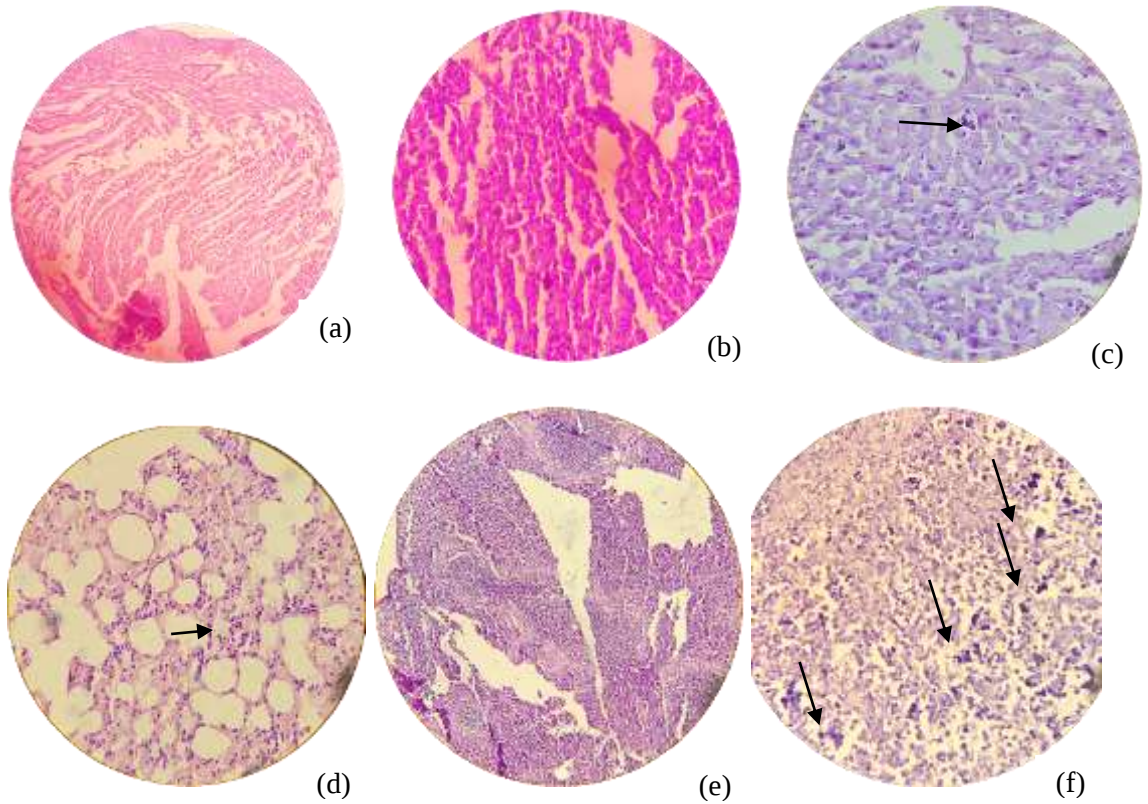


Figure 46: Effects of cannabis extract on cellular changes at 7 days of treatment after EAC inoculation. Histopathological observation of 400X view under a light microscope. (a) heart, (b) kidney, (c) liver, (d) lung, (e) pancreas, and (f) tumor. The marking area indicates sarcoma-type cancer on the tumor. Inflammatory cells were observed in the lung, and atypical cells were seen in the liver.

Group 6: Treatment started after 14 days of EAC inoculation

Mice in this group were first inoculated with EAC. Fourteen days after EAC inoculation, three different concentrations of cannabis extract were started to treatment to the EAC-inoculating mice.

4.2.6.1 Body weight measurement of albino mice

The effects of cannabis extract on the body at 14 days of treatment after EAC inoculation are shown in table no. 49. The results revealed that body weight was significantly ($P<0.05$) varied among the treatment groups in 2nd week of observation. The body weight of mice was significantly ($P<0.05$) highest in T2 (34.50 ± 1.82) compared to T0, T1, and T3 treatment groups. No significant differences between the groups in T1, and T3.

Table 49: Effects of cannabis extract on the body at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (g.)	T1 (g.)	T2 (g.)	T3 (g.)	
3 rd days	21.60 $\pm$ 1.45	19.63 $\pm$ 1.25	22.76 $\pm$ 2.09	21.33 $\pm$ 1.93	0.08
1 st week	25.60 $\pm$ 0.92	26.50 $\pm$ 2.10	29.06 $\pm$ 1.70	27.06 $\pm$ 1.97	0.21
2 nd week	30.93 $\pm$ 2.79 ^a	32.73 $\pm$ 2.13 ^b	34.50 $\pm$ 2.82 ^c	32.72 $\pm$ 2.27 ^b	0.03
3 rd week	37.60 $\pm$ 2.75	37.50 $\pm$ 2.96	41.83 $\pm$ 3.63	38.97 $\pm$ 3.31	0.31

Values= Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.2 Biochemical profile

4.2.6.2.1 RBS

The effects of cannabis extract on RBS at 14 days of treatment after EAC inoculation are shown in table no. 50. On the 3rd day of observations, the RBS result differed significantly ($P<0.05$) among the different treatment groups of mice except the 1st, 2nd, and 3rd weeks respectively. On the 3rd day of observation, mice of the T1 group ($3.73\pm0.63\text{mmolL}^{-1}$) had

significantly ($P<0.01$) lower RBS than T0 ($8.90\pm0.63\text{mmolL}^{-1}$), but there was no significant difference was found between T2 and T3 groups.

Table 50: Effects of cannabis extract on RBS at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mmolL ⁻¹)	T1 (mmolL ⁻¹)	T2 (mmolL ⁻¹)	T3 (mmolL ⁻¹)	
3 rd day	8.90 ± 1.63^c	3.73 ± 0.63^a	5.33 ± 0.15^b	5.41 ± 0.37^b	0.01
1 st week	6.60 ± 2.01	4.23 ± 0.49	4.60 ± 0.56	5.47 ± 0.74	0.47
2 nd week	5.17 ± 0.82	4.40 ± 0.60	4.83 ± 0.27	5.43 ± 0.61	0.67
3 rd week	5.80 ± 0.65	4.10 ± 0.51	4.13 ± 0.13	5.27 ± 1.07	0.27

Values= Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.2.2 Serum creatinine

The effects of cannabis extract on serum creatinine at 14 days of treatment after EAC inoculation are shown in table no. 51. There were no significant ($p<0.05$) data varied among the treatment groups (T1, T2, T3, and T4) in the 3rd days, 1st week, 2nd week, and 3rd week respectively. The highest value of serum creatinine was T1 ($0.39\pm0.08\text{mg/dl}$) in the 1st week, and the lowest value was T1 ($0.17\pm0.03\text{mg/dl}$) in the 3rd day of observation.

Table 51: Effects of cannabis extract on serum creatinine at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	0.21 ± 0.05	0.32 ± 0.10	0.23 ± 0.06	0.17 ± 0.08	0.15
1 st week	0.23 ± 0.03	0.27 ± 0.03	0.22 ± 0.02	0.23 ± 0.03	0.89
2 nd week	0.23 ± 0.05	0.30 ± 0.06	0.17 ± 0.03	0.23 ± 0.03	0.24
3 rd week	0.30 ± 0.05	0.37 ± 0.03	0.23 ± 0.9	0.27 ± 0.03	0.45

Values= Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.6.2.3 SGPT

The effects of cannabis extract on SGPT at 14 days of treatment after EAC inoculation are shown in table no. 52. There were no significant ($p < 0.05$) data varied among the treatment groups (T1, T2, T3, and T4) on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of SGPT was T3 (245.00 ± 110.11 U/L) in the 1st week, and the lowest value was T0 (19.00 ± 2.00 U/L) in the 3rd day of observation.

Table 52: Effects of cannabis extract on SGPT at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	28.33 $\pm$ 0.41	59.00 $\pm$ 0.95	50.00 $\pm$ 0.57	124.33 $\pm$ 1.88	0.62
1 st week	19.00 $\pm$ 0.32	106.67 $\pm$ 3.24	90.33 $\pm$ 3.04	45.00 $\pm$ 0.11	0.18
2 nd week	30.66 $\pm$ 0.54	52.66 $\pm$ 1.19	82.33 $\pm$ 2.33	84.33 $\pm$ 0.59	0.58
3 rd week	21.33 $\pm$ 0.17	98.66 $\pm$ 1.87	45.00 $\pm$ 0.92	42.67 $\pm$ 0.86	0.31

Values= Mean $\pm$ SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value = probability value.

4.2.6.2.4 SGOT

The effects of cannabis extract on SGOT at 14 days of treatment after EAC inoculation are shown in table no. 53. There were no significant ($p < 0.05$) data varied among the treatment groups (T0, T1, T2, and T3) on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value of SGOT was T2 (414.33 ± 239.22 U/L) in the 3rd week and the lowest value was T0 (19.33 ± 3.67 U/L) on the 3rd day of observation.

Table 53: Effects of cannabis extract on SGOT at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	19.33±0.67	52.00±1.42	62.00±1.92	52.00±1.48	0.24
1 st week	34.33±0.81	137.67±2.06	51.67±2.00	33.00±3.87	0.29
2 nd week	23.33±0.61	171.00±2.84	88.33±1.88	89.33±78.34	0.07
3 rd week	34.00±7.02	202.17±3.17	114.33±3.22	90.33±1.17	0.25

Values= Mean±SE T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.2.5 Alkaline phosphatase

The effects of cannabis extract on alkaline phosphatase at 14 days of treatment after EAC inoculation are shown in table no. 54. The results revealed that alkaline phosphatase was significantly ($P<0.05$) varied among the treatment groups in 1st week, 2nd week and 3rd week of observation. The alkaline phosphatase test value of mice was significantly ($P<0.05$) highest in the T1 group (1766±338.51U/L) in 2nd week of observation. In the 3rd week, the highest alkaline phosphatase test resulted significantly ($P<0.05$) highest in T3 (1800.33±109.31U/L) and lowest in T0 (54.33±21.02U/L) after treatment compared to other treatment groups.

Table 54: Effects of cannabis extract on alkaline phosphatase at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	67.33±13.77	134.00±86.42	225.33±69.90	149.00±45.93	0.39
1 st week	89.67±12.60 ^a	1570.00±342.3 ^c	1180.02±394.63 ^c	711.67±38.22 ^b	0.03
2 nd week	80.33±30.22 ^a	1766±338.51 ^d	1507.54±417.90 ^c	937.33±119.39 ^b	0.02
3 rd week	54.33±21.02 ^a	844.00±121.50 ^b	1207.22±192.26 ^c	1800.33±109.3 ^d	0.01

Values= Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.6.2.6 Serum Cholesterol

The effects of cannabis extract on serum cholesterol at 14 days of treatment after EAC inoculation are shown in table no. 55. There were no significant ($p < 0.05$) results observed compared to all treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest result of serum cholesterol was (160.33 ± 22.18 mg/dl) in the 1st week T2 group and the lowest result of serum cholesterol was (100.33 ± 17.07 mg/dl) in the 3rd week T2 group.

Table 55: Effects of cannabis extract on serum cholesterol at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	142.00 $\pm$ 2.11	140.21 $\pm$ 2.2	152.06 $\pm$ 3.18	141.00 $\pm$ 2.16	0.58
1 st week	117.17 $\pm$ 1.21	132.20 $\pm$ 1.9	160.33 $\pm$ 3.18	152.67 $\pm$ 2.18	0.54
2 nd week	130.33 $\pm$ 1.97	121.00 $\pm$ 1.8	127.33 $\pm$ 1.33	137.20 $\pm$ 2.04	0.87
3 rd week	136.00 $\pm$ 2.50	121.02 $\pm$ 1.9	159.67 $\pm$ 3.49	123.10 $\pm$ 1.80	0.64

Values= Mean $\pm$ SE, T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.6.2.7 Serum Triglyceride

The effects of cannabis extract on serum triglyceride at 14 days of treatment after EAC inoculation are shown in table no. 56. There were no significant ($p < 0.05$) results observed compared to all treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest result of serum triglyceride was (145.67 ± 2.98 mg/dl) in the 2nd week T1 treatment group and the lowest result of serum triglyceride was (77.83 ± 0.94 mg/dl) in the 3rd week T3 group.

Table 56: Effects of cannabis extract on serum triglyceride at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	103.12±1.24	98.33±1.06	103.33±1.19	108.33±1.84	0.14
1 st week	123.13±1.32	130.33±1.63	125.67±1.89	129.81±1.51	0.13
2 nd week	133.33±2.47	145.67±2.98	121.02±1.10	97.30±0.83	0.09
3 rd week	113.33±1.90	87.03±1.17	98.00±1.40	77.83±0.94	0.07

Values= Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.2.8 Serum Uric acid

The effects of cannabis extract on uric acid at 14 days of treatment after EAC inoculation are shown in table no. 57. In the 3rd week of observation, the serum uric acid result was significantly ($p<0.05$) different among the treatment group of 3rd days, 1st week, and 2nd week respectively. In the 3rd week, the highest uric acid test result at T0 (8.33±0.29mg/dl) significantly varied ($p<0.05$) in the T1, T2, and T3 groups of mice respectively.

Table 57: Effects of cannabis extract on uric acid at 14 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	5.20±0.62	5.83±0.96	4.91±0.34	5.43±0.65	0.83
1 st week	6.56±0.61	7.03±0.60	6.20±0.82	5.93±0.94	0.76
2 nd week	5.70±1.15	7.61±0.89	6.07±0.29	5.63±0.47	0.30
3 rd week	8.33±0.29 ^c	7.51±0.78 ^{bc}	6.03±0.52 ^b	5.13±0.49 ^a	0.01

Values= Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.3 Hematological profile

4.2.6.3.1 Hb

The effects of cannabis extract on Hb at 14 days of treatment after EAC inoculation are shown in table no. 58. In the 2nd week of observation, hemoglobin test results significantly varied ($p<0.05$) compared to the 3rd day, 1st week and 3rd week respectively. No significant difference ($p<0.05$) was observed among the groups of 3rd days, 1st week and 3rd-week mice treatment groups. In the 2nd week of observation, the Hb level was significantly ($p<0.05$) highest in T1 ($14.76\pm 0.39\text{mg/dl}$) group compared to the other groups. Significant differences were observed among the T0 group to T1, T2, and T3 treatment groups.

4.2.6.3.2 RBC count

The effects of cannabis extract on RBC count at 14 days of treatment after EAC inoculation are shown in table no. 58. In the 1st and 2nd week and 3rd weeks of observations, the RBC result differed significantly ($P<0.05$) among the different treatment groups. The highest value in the 1st week was T1 ($4.93\pm 0.07\text{mg/dl}$) significantly varied ($p<0.05$) among the treatment groups of T0, T2, and T3. In the 2nd week of observation, RBC test results were significantly ($p<0.05$) varied at highest in T1 ($5.00\pm 0.01\text{mg/dl}$) and lowest in T2 ($4.03\pm 0.03\text{mg/dl}$). In the 3rd week of observation, the RBC test result was significantly ($p<0.05$) different in T1 ($5.00\pm 0.01\text{mg/dl}$) highest value among the other treatment groups.

4.2.6.3.3 WBC count

The effects of cannabis extract on WBC count at 14 days of treatment after EAC inoculation are shown in table no. 58. There were no significant variations ($p<0.05$) observed among the treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest value was observed in T1 ($7.67\pm 0.33\times 10^6/\text{cmm}$) on the 3rd day and the lowest value was observed in T2 ($3.40\pm 0.70\times 10^6/\text{cmm}$) in 3rd week of observation.

4.2.6.3.4 Platelet count

The effects of cannabis extract on platelet count at 14 days of treatment after EAC inoculation are shown in table no. 58. No significant ($p<0.05$) variations were observed

among all treatment groups of mice on the 3rd day, 1st, 2nd and 3rd week respectively. The highest results of platelet count were ($4.50 \pm 0.50 \times 10^5/\text{cmm}$) in the 3rd week T1 group and the lowest results of platelet count were ($2.99 \pm 0.03 \times 10^5/\text{cmm}$) in the 1st week T2 group of mice

Table 58: Effects of cannabis extract on hematological profile at 14 days of treatment after EAC inoculation

Parameters	Time interval	Treatment groups				P-value
		T0	T1	T2	T3	
Hb (mg/dl)	3 rd day	14.67 $\pm$ 0.34	14.17 $\pm$ 0.38	14.63 $\pm$ 0.03	14.40 $\pm$ 0.46	0.72
	1 st week	14.40 $\pm$ 0.26	14.06 $\pm$ 0.22	14.40 $\pm$ 0.25	14.93 $\pm$ 0.33	0.23
	2 nd week	14.13 $\pm$ 1.02	14.73 $\pm$ 0.37	14.63 $\pm$ 0.20	15.10 $\pm$ 0.38	0.72
	3 rd week	13.90 $\pm$ 0.38 ^a	14.70 $\pm$ 0.36 ^b	15.33 $\pm$ 0.26 ^c	15.36 $\pm$ 0.23 ^c	0.03
RBC ($10^6/\text{cmm}$)	3 rd day	4.47 $\pm$ 0.35	4.97 $\pm$ 0.20	4.83 $\pm$ 0.22	5.10 $\pm$ 0.12	0.33
	1 st week	4.97 $\pm$ 0.20	5.27 $\pm$ 0.26	5.07 $\pm$ 0.27	4.57 $\pm$ 0.28	0.34
	2 nd week	5.10 $\pm$ 0.51	4.43 $\pm$ 0.12	4.57 $\pm$ 0.12	4.47 $\pm$ 0.28	0.43
	3 rd week	5.40 $\pm$ 0.44	4.50 $\pm$ 0.26	4.83 $\pm$ 0.29	4.57 $\pm$ 0.15	0.22
WBC ($10^3/\text{cmm}$)	3 rd day	5.17 $\pm$ 0.82 ^a	12.17 $\pm$ 1.07 ^{ab}	18.80 $\pm$ 1.18 ^b	54.80 $\pm$ 1.52 ^c	<0.001
	1 st week	4.90 $\pm$ 0.91 ^a	13.40 $\pm$ 0.82 ^b	30.90 $\pm$ 2.78 ^{bc}	72.37 $\pm$ 3.72 ^c	0.01
	2 nd week	4.20 $\pm$ 0.50 ^a	23.37 $\pm$ 1.90 ^c	14.53 $\pm$ 2.89 ^b	88.13 $\pm$ 4.73 ^d	<0.001
	3 rd week	5.57 $\pm$ 0.23	21.43 $\pm$ 1.33	22.13 $\pm$ 1.44	116.83 $\pm$ 1.5	0.10
Platelet ($\times 10^5/\text{cmm}$)	3 rd day	2.30 $\pm$ 0.25	3.57 $\pm$ 0.36	3.27 $\pm$ 0.04	3.23 $\pm$ 0.54	0.14
	1 st week	3.20 $\pm$ 0.10	3.96 $\pm$ 1.05	2.79 $\pm$ 0.19	2.86 $\pm$ 0.24	0.46
	2 nd week	3.45 $\pm$ 0.49	2.91 $\pm$ 0.41	2.53 $\pm$ 0.23	2.89 $\pm$ 0.29	0.42
	3 rd week	4.46 $\pm$ 0.41	3.70 $\pm$ 1.04	3.27 $\pm$ 0.53	2.83 $\pm$ 0.27	0.37

The values are Mean $\pm$ SE, ^{abcd} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value = probability value.

4.2.6.4 Tumor growth response

The Effects of cannabis extract on tumor volume, packed cell volume and tumor cell count at 14 days of treatment after EAC inoculation are given in table no. 59. In the EAC-induced mice, the cytotoxic agent treatment group and T1 treatment group show ($p<0.01$) significance levels. The highest value was observed in EAC induced tumor group and the lowest value was observed in the cytotoxic agent-injected group of mice. The T2 and T3 treatment injected group shows ($p<0.05$) level of significance. The lowest values were observed in the T3 treatment injection group.

Table 59: Effect of cannabis extract on tumor volume, packed cell volume and tumor cell count

Group	Tumor volume (ml)	Packed cell volume (ml)	Tumor cell count $\times 10^7$ cells/ml/mice		P-value
			Viable	Nonviable	
EAC	3.68 $\pm$ 0.13 ^a	1.60 $\pm$ 0.4 ^b	8.31 $\pm$ 1.02 ^c	0.36 $\pm$ 0.01 ^a	0.01
Cytotoxic	1.10 $\pm$ 0.04 ^b	0.37 $\pm$ 0.01 ^a	3.11 $\pm$ 0.79 ^c	2.33 $\pm$ 0.2 ^b	0.01
T1	3.33 $\pm$ 0.11 ^b	1.11 $\pm$ 0.03 ^a	1.55 $\pm$ 0.31 ^a	1.33 $\pm$ 0.1 ^a	0.01
T2	1.41 $\pm$ 0.07 ^b	0.47 $\pm$ 0.1 ^a	0.21 $\pm$ 0.02 ^a	3.11 $\pm$ 0.31 ^c	0.05
T3	1.22 $\pm$ 0.02 ^b	0.27 $\pm$ 0.01 ^a	0.01 $\pm$ 0.02 ^a	6.11 $\pm$ 1.53 ^c	0.05

Values= Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.6.5 Cytopathological study of ascitic fluids

Ascitic fluids were collected after sacrificing the mice. The marking image shows that carcinoma-type cells were seen under the light microscope 400X view.

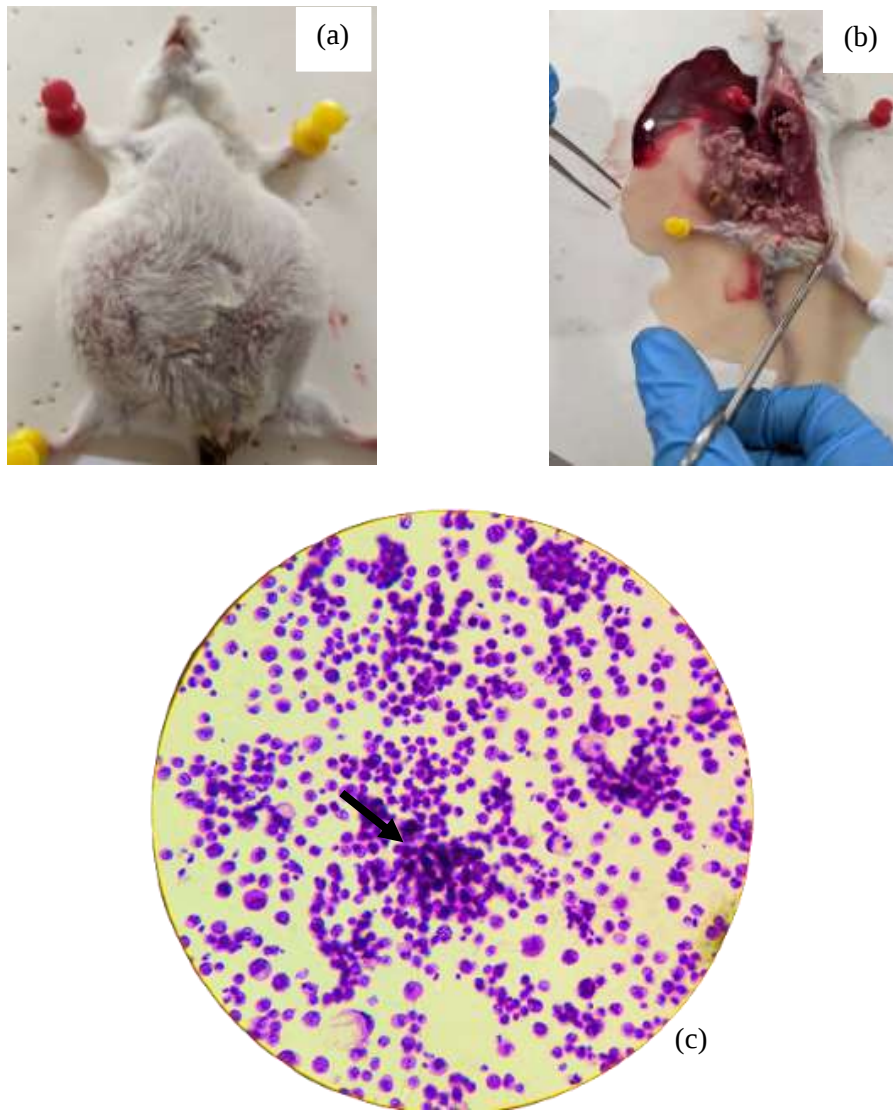


Figure 47: Effects of cannabis extract on cytology of ascitic fluid at 14 days of treatment after EAC inoculation. For cytological observation (a) Edema was observed 21 days after EAC cells post-inoculation, (b) Fluid was collected for FNAC test, and (c) microscopic 400x observation of fluids.

4.2.6.6 Histopathological Study of main organs and tumor

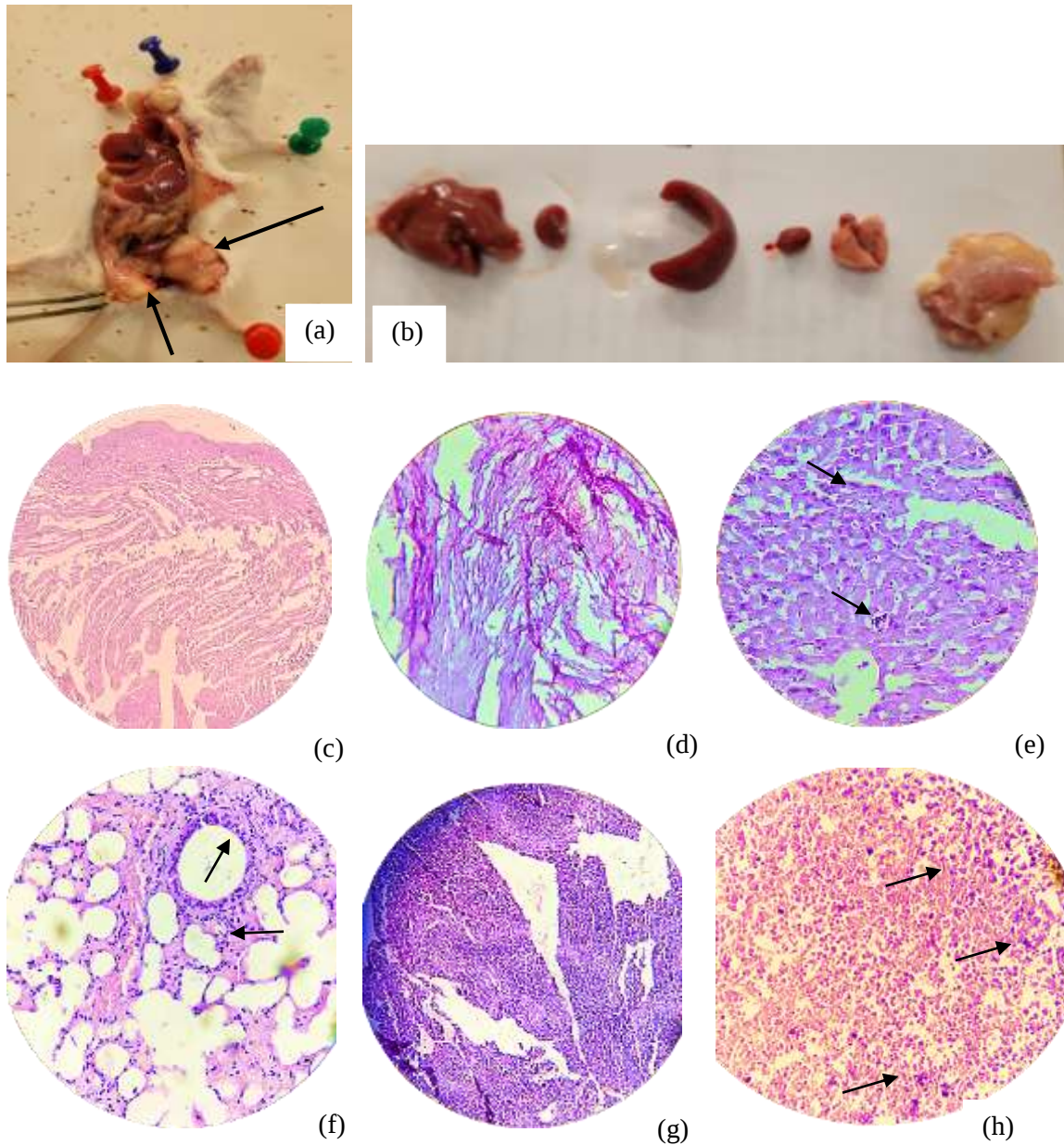


Figure 48: Effects of cannabis extract on cellular changes of main organ and tumor at 14 days of treatment after EAC inoculation. For histological observation (a) mice were sacrificed, the marked area indicated a tumor, (b) the main organ (heart, kidney, liver, lung, pancreas, and tumor) was surgically removed, (c) the heart, (d) kidney, (e) liver, marking areas indicate the cellular necrosis occur and lesion formed (f) lung, marking area the cellular changes occur, carcinoma type cells observed. (g) pancreas histopathological 400x observation under a light microscope. (h) tumor histology, marking areas indicate sarcoma-type cancer cells in mice.

Group 7: Treatment started after 21 days of EAC inoculation

Mice were inoculated with EAC first. After twenty-one days of EAC inoculation, three different concentrations of cannabis extract were started to treatment to the EAC-inoculating mice. After 3 days of treatment, the mice were sacrificed. In the same way-one week, two weeks, and three weeks of treatment with cannabis extract mice were sacrificed for biochemical and hematological tests.

4.2.7.1 Body weight measurement of albino mice

The effects of cannabis extract on body weight at 21 days of treatment after EAC inoculation is given in table no. 60. The results revealed that body weight was significantly ($P<0.05$) varied among the treatment groups at 1st and 2nd week after cannabis extract injection. In 1st week of observation, the body weight of mice was significantly ($P<0.05$) highest in T2 (28.76 ± 5.17 g) and lowest in T0 (25.93 ± 0.68 g). No significant differences between the groups of T0, T1, and T2, T3 group. In 2nd week of observation, the body weight of mice was significantly ($P<0.05$) highest in T2 (33.66 ± 5.69 g) and lowest in T0 (31.13 ± 1.03 g). No significant differences between the groups of T1, and T3, but significant differences were observed in T0, T1, and T3 respectively.

Table 60: Effects of cannabis extract on body weight at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0	T1	T2	T3	
3 rd day	20.10 $\pm$ 0.45	22.03 $\pm$ 0.25	18.76 $\pm$ 1.09	21.89 $\pm$ 1.93	0.22
1 st week	25.93 $\pm$ 0.68 ^a	26.63 $\pm$ 0.75 ^a	28.76 $\pm$ 5.17 ^b	27.11 $\pm$ 1.58 ^b	0.05
2 nd week	31.13 $\pm$ 1.03 ^a	32.50 $\pm$ 1.90 ^b	33.66 $\pm$ 1.99 ^c	32.43 $\pm$ 1.73 ^b	0.03
3 rd week	37.33 $\pm$ 1.05	39.50 $\pm$ 1.32	41.06 $\pm$ 2.92	39.41 $\pm$ 1.58	0.07

Values= Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.2 Biochemical profile

4.2.7.2.1 RBS

The effects of cannabis extract on RBS at 21 days of treatment after EAC inoculation is given in table no. 61. There were no significant differences ($p < 0.05$) observed among the treatment groups in the 3rd day, 1st, 2nd, and 3rd week respectively.

Table 61: Effects of cannabis extract on RBS at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mmolL ⁻¹)	T1 (mmolL ⁻¹)	T2 (mmolL ⁻¹)	T3 (mmolL ⁻¹)	
3 rd day	5.11±0.14	6.61±0.25	4.83±0.91	4.70±0.89	0.78
1 st week	5.73±0.20	4.83±0.16	6.03±0.38	5.43±0.18	0.73
2 nd week	4.53±0.72	4.60±0.87	4.60±0.81	4.33±0.73	0.98
3 rd week	5.40±0.40	3.33±0.17	4.70±0.35	4.36±0.31	0.07

Values= Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean. P-value= probability value.

4.2.7.2.2 Serum creatinine

The effects of cannabis extract on serum creatinine at 21 days of treatment after EAC inoculation is given in table no. 62. There were no significant ($p < 0.05$) variations among the treatment groups of T0, T1, T2, and T3 in the 1st, 2nd, and 3rd week respectively. The highest value of serum creatinine in T1 (0.37±0.07mg/dl) on 2nd week and the lowest value of serum creatinine in T3 (0.20±0.02mg/dl) on 3rd day of cannabis extract injection.

Table 62: Effects of cannabis extract on serum triglyceride at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	0.22±0.02	0.33±0.03	0.23±0.02	0.20±0.02	0.13
1 st week	0.27±0.02	0.21±0.07	0.27±0.06	0.26±0.03	0.32
2 nd week	0.23±0.03	0.37±0.07	0.33±0.03	0.22±0.03	0.32
3 rd week	0.20±0.07	0.32±0.03	0.20±0.02	0.23±0.03	0.43

Values= Mean±SE. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.2.3 SGPT

The effects of cannabis extract on SGPT at 21 days of treatment after EAC inoculation is given in table no. 63. On the 3rd day of observation, test results were significantly varied ($p=0.009$) compare to the other treatment groups. The highest value ($392.33\pm95.15\text{U/L}$) at T1 treatment was significantly compared to the T0, T2, and T3 groups. But no significantly different in the group T2, and T3. In the 1st week of cannabis extract treatment, test results were significantly varied ($p=0.006$) compare to the other treatment groups of T0, T1, T2, and T3. The lowest result in T0 ($26.00\pm3.21\text{U/L}$) was significantly varied in the groups of T1, T2, and T3. But no significant variation in T1, T2, and T3 groups. In the 2nd week of cannabis extract treatment, test results were significantly varied ($p=0.001$) compare to the other groups of treatment. The highest value in T2 ($910.00\pm158.77\text{U/L}$) was significantly varied from the other treatment groups of T0, T1, and T3. No significant variation between the groups of T1, and T3. In the 3rd week of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other groups of treatment. The highest value in T2 ($1277.00\pm78.04\text{U/L}$) was significantly varied from the other treatment groups of T0, T1, and T3. No significant variation between the groups of T1, and T3.

Table 63: Effects of cannabis extract on SGPT at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1(U/L)	T2(U/L)	T3(U/L)	
3 rd day	30.00±6.81 ^a	392.33±95.15 ^c	187.00±38.63 ^b	192.67±34.97 ^b	0.009
1 st week	26.00±3.21 ^a	305.67±85.38 ^b	365.67±33.98 ^b	259.33±35.26 ^b	0.006
2 nd week	29.67±5.4 ^a	436.67±87.71 ^b	910.00±158.77 ^c	432.33±51.10 ^b	0.001
3 rd week	31.67±4.98 ^a	700.33±91.42 ^b	1277.00±178.04 ^c	683.00±109.47 ^b	<0.001

Values= Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.7.2.4 SGOT

The effects of cannabis extract on SGOT at 21 days of treatment after EAC inoculation is given in table no. 64. On the 3rd day of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other treatment groups. The highest value (308.33±37.64U/L) at T3 treatment was significant compared to the T0, T1, and T2 groups. At the 1st week of cannabis extract treatment, test results were significantly varied ($p<0.05$) compare to the other treatment groups of T0, T1, T2, and T3. The lowest result in T0 (56.67±11.55U/L) was significantly varied from the groups of T1, T2, and T3. In the 2nd week of cannabis extract treatment, test results were significantly varied ($p<0.05$) compare to the other groups of treatment. The highest value in T1 (1223.00±228.36U/L) was significantly varied from the other treatment groups of T0, T2, and T3. No significant variation between the groups of T0, and T1. In the 3rd week of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other groups of treatment. The highest value in T2 (1354.67±100.07U/L) was significantly varied from the other treatment groups of T0, T1, and T3. No significant variation between the groups of T1, and T2.

Table 64: Effects of cannabis extract on SGOT at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	41.00±9.64 ^a	454.33±70.18 ^c	180.67±30.34 ^{ab}	308.33±37.64 ^b	<0.001
1 st week	56.67±11.55 ^a	814.33±215.47 ^b	550.33±166.73 ^{ab}	447.00±161.71 ^{ab}	0.05
2 nd week	63.67±21.93 ^a	1223.00±228.36 ^c	925.36±151.58 ^{bc}	675.67±128.82 ^b	0.004
3 rd week	87.33±23.39 ^a	1337.33±138.04 ^c	1354.67±100.07 ^c	776.67±226.59 ^b	<0.001

Values= Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, p-value= probability value.

4.2.7.2.5 Alkaline phosphatase

The effects of cannabis extract on alkaline phosphatase at 21 days of treatment after EAC inoculation is given in table no. 65. On the 3rd day of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other treatment groups. The highest value (660.67±65.69U/L) at T1 treatment was significantly compared to the T0, T1, and T2 groups. In the 1st week of cannabis extract treatment, test results were significantly varied ($p<0.05$) compare to the other treatment groups of T0, T1, T2, and T3. The lowest results in T0 (70.67±13.53U/L) was significantly varied in the groups of T1, T2, and T3. Significant variation ($p<0.05$) was observed between T0 to T1, T2, and T3 groups of mice. In the 2nd week of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other groups of treatment. The highest value in T1 (1476.00±182.03U/L) was significantly varied to T0, and T3. No significant variation between the groups of T1, and T2. In the 3rd week of cannabis extract treatment, test results were significantly varied ($p<0.001$) compare to the other groups of treatment. The highest value in T1 (1986.00±64.16U/L) was significantly varied to the other treatment groups of T0, T2, and T3.

Table 65: Effects of cannabis extract on alkaline phosphatase at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (U/L)	T1 (U/L)	T2 (U/L)	T3 (U/L)	
3 rd day	66.33±11.17 ^a	660.67±65.69 ^c	328.00±69.97 ^b	519.33±44.47 ^c	<0.001
1 st week	70.67±13.53 ^a	953.00±128.34 ^b	707.33±179.89 ^b	723.33±31.80 ^b	0.003
2 nd week	63.33±17.85 ^a	1476.00±182.03 ^c	1138.00±126.13 ^c	549.67±165.63 ^b	<0.001
3 rd week	88.00±18.48 ^a	1986.00±64.16 ^d	1140.33±130.75 ^c	609.33±203.24 ^b	<0.001

Values= Mean±SE, ^{abcd} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.2.6 Serum Cholesterol

The effects of cannabis extract on serum cholesterol at 21 days of treatment after EAC inoculation are given in table no. 66. There were no significant ($p<0.05$) variations observed compared to all treatment groups on the 3rd day, 1st week, 2nd week, and 3rd week respectively. The highest result of serum cholesterol (166.33±4.47mg/dl) on the 3rd day in the T3 treatment group. Lowest result of serum cholesterol (112.33±3.86mg/dl) in the 2nd week T0 treatment group.

Table 66: Effects of cannabis extract on serum cholesterol at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	147.33±3.55	150.00±4.40	158.00±4.97	166.33±5.17	0.25
1 st week	144.67±3.89	151.52±5.23	140.33±3.89	143.33±3.80	0.77
2 nd week	112.33±3.86	121.11±5.02	138.00±6.13	149.67±5.63	0.34
3 rd week	125.67±1.22	134.67±7.07	140.33±3.75	139.33±3.24	0.10

Values= Mean±SE, ^{ab} values having different superscripts differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.2.7 Serum Triglyceride

The effects of cannabis extract on serum triglyceride at 21 days of treatment after EAC inoculation is given in table no. 67. On the 3rd week of observation, serum triglyceride test results differ significantly ($p<0.05$) varied among the treatment groups of T0, T1, T2, and T3. There were no significant ($p<0.05$) variations observed in the 3rd day, 1st week, and 2nd week of mice treatment groups. The lowest result in T2 ($143.00\pm13.00\text{mg/dl}$) was significantly varied ($p<0.05$) to the other treatment group T0, T1, and T3 in 3rd week of cannabis extract injection.

Table 67: Effects of cannabis extract on serum triglyceride at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0 (mg/dl)	T1 (mg/dl)	T2 (mg/dl)	T3 (mg/dl)	
3 rd day	110.00 $\pm$ 11.53	128.33 $\pm$ 11.31	123.03 $\pm$ 10.19	116.33 $\pm$ 10.04	0.32
1 st week	163.33 $\pm$ 11.32	180.33 $\pm$ 10.50	156.67 $\pm$ 25.89	169.23 $\pm$ 20.10	0.38
2 nd week	183.33 $\pm$ 10.47	171.67 $\pm$ 13.98	161.00 $\pm$ 14.10	152.33 $\pm$ 8.83	0.27
3 rd week	173.33 $\pm$ 9.90 ^c	165.33 $\pm$ 5.17 ^{bc}	143.00 $\pm$ 13.00 ^a	157.83 $\pm$ 5.04 ^b	0.02

The values are Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value = probability value.

4.2.10.2.8 Serum uric acid

The effects of cannabis extract on serum uric acid at 21 days of treatment after EAC inoculation is given in table no. 68. In the 3rd day and 2nd weeks of observations, the uric acid result differed significantly ($P<0.05$) among the different treatment groups of mice. On the 3rd day after treatment, mice of the T0 group ($6.61\pm0.55\text{mg/dl}$) had significantly ($P<0.05$) lower uric acid than T1 ($8.23\pm0.72\text{ mg/dl}$) but there was no significant difference was found between T1, T2, and T3 treatment groups. In the 2nd week after treatment, mice of the T0 group ($5.32\pm0.76\text{mg/dl}$) had significantly ($P<0.05$) lower uric acid than the T3 ($18.63\pm4.08\text{mg/dl}$) group but there was no significant difference was found between T0 and T1 treatment groups.

Table 68: Effects of cannabis extract on uric acid at 21 days of treatment after EAC inoculation

Time interval	Treatment groups				P-value
	T0	T1	T2	T3	
3 rd day	6.61±0.55 ^a	8.23±0.72 ^b	6.33±0.13 ^b	7.71±0.21 ^b	0.02
1 st week	7.32±0.83	7.70±0.73	9.13±1.21	9.87±2.12	0.35
2 nd week	5.32±0.76 ^a	7.14±0.58 ^a	9.57±0.97 ^{ab}	18.63±4.08 ^b	0.05
3 rd week	6.07±1.04	7.32±2.03	10.67±2.03	15.99±5.80	0.28

The values are Mean±SE, ^{ab} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.3 Hematological profile

4.2.7.3.1 Hb

The effects of cannabis extract on Hb at 21 days of treatment after EAC inoculation are given in table no. 69. In the 2nd week of cannabis extract injection, hemoglobin test results were significantly varied ($p<0.05$) compared to the 3rd days, 1st week, and 3rd-week treatment groups of mice. The Hb level was significantly ($p<0.05$) highest in T2 (14.70±0.30mg/dl) group compared to the other groups in 2nd week of observation.

4.2.7.3.2 RBC count

The effects of cannabis extract on RBC at 21 days of treatment after EAC inoculation are given in table no. 69. During the 1st week of cannabis extract injection, RBC test results significantly varied ($p<0.05$) compared to the 3rd days, 2nd week and 3rd-week treatment groups of mice. No significant differences ($p<0.05$) were observed among the groups of 3rd days, 2nd week, and 3rd-week mice treatment groups. RBC level was significantly ($p<0.05$) highest in T0 (4.67±0.33×10⁶/cmm) group compared to the other groups in the 1st week of observation.

4.2.7.3.3 WBC count

The effects of cannabis extract on RBC at 21 days of treatment after EAC inoculation is given in table no. 69. In the 1st week of cannabis extract injection, the WBC count test result significantly varied ($p<0.05$) compared to treatment groups of mice. A significant difference ($p<0.05$) was observed in the highest value at T0 ($4.67\pm0.33\times10^3/\text{cmm}$) and the lowest value at T2 ($3.60\pm0.30\times10^3/\text{cmm}$). In the 2nd week of observation, WBC count test results significantly varied ($p<0.01$) among the treatment groups of mice. A significant difference ($p<0.01$) was observed in the highest value at T1 ($51.34\pm3.71\times10^3/\text{cmm}$) and the lowest value at T0 ($4.67\pm0.33\times10^3/\text{cmm}$). No significant difference was observed among the treatment groups of T2 and T3. In the 3rd week of observation, WBC count test results significantly varied ($p=0.05$) among the treatment groups of mice. A significant difference ($p=0.05$) was observed in the highest value at T1 ($58.34\pm14.99\times10^3/\text{cmm}$) and the lowest value at T0 ($6.01\pm0.01\times10^3/\text{cmm}$).

4.2.7.3.4 Platelet count

The effects of cannabis extract on platelet count at 21 days of treatment after EAC inoculation is given in table no. 69. No significant ($p<0.05$) variations were observed among all treatment groups of mice on the 3rd day, 1st, 2nd and 3rd week respectively. The highest results of platelet count were ($4.60\pm0.66\times10^5/\text{cmm}$) in the 3rd week T2 treatment group and the lowest results of platelet count were ($2.63\pm0.11\times10^5/\text{cmm}$) in the 3rd day T1 treatment group of mice.

Table 69: Effects of cannabis extract on hematological profile at 21 days of treatment after EAC inoculation

Parameters	Time interval	Treatment groups				P-value
		T0	T1	T2	T3	
Hb (mg/dl)	3 rd day	14.13±0.62	14.67±0.43	14.27±0.63	13.33±0.67	0.89
	1 st week	14.90±0.13	14.06±0.23	14.12±0.54	14.97±0.03	0.14
	2 nd week	13.03±0.54 ^a	13.76±0.31 ^a	14.70±0.30 ^b	14.60±0.31 ^b	0.05
	3 rd week	13.27±0.30	14.13±0.79	13.67±0.33	14.83±0.17	0.23
RBC (10 ⁶ /cmm)	3 rd day	4.70±0.35	4.23±0.23	4.22±0.2	5.16±0.09	0.86
	1 st week	4.67±0.33 ^b	3.93±0.06 ^a	3.60±0.30 ^a	4.61±0.32 ^b	0.05
	2 nd week	4.97±0.32	5.33±0.01	5.43±0.03	5.90±0.07	0.16
	3 rd week	4.87±0.13	5.20±0.04	4.97±0.03	5.07±0.07	0.11
WBC (10 ³ /cmm)	3 rd day	5.06±0.39	6.61±0.33	7.03±0.39	6.53±0.67	0.29
	1 st week	4.83±0.27 ^a	21.47±4.91 ^c	17.30±3.63 ^b	12.33±1.53 ^{ab}	0.03
	2 nd week	4.67±0.33 ^a	51.34±3.71 ^c	23.13±5.6 ^b	20.33±3.48 ^b	<0.01
	3 rd week	6.01±0.01 ^a	58.34±14.99 ^c	42.40±12.70 ^b	45.27±7.80 ^{bc}	0.05
Platelet (10 ⁵ /cmm)	3 rd day	3.20±0.41	3.73±0.21	2.63±0.11	4.26±0.35	0.51
	1 st week	3.36±0.32	3.46±0.29	3.09±0.03	4.33±0.34	0.60
	2 nd week	3.25±0.90	3.74±0.26	3.47±0.33	3.91±0.04	0.62
	3 rd week	3.27±0.27	4.50±0.50	4.60±0.66	4.30±0.33	0.65

The values are Mean±SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.4 Tumor growth response

In the EAC-induced mice, T1, T2 and T3 treatment group shows ($p<0.01$) significance level. The highest value was observed in EAC induced tumor group. The lowest value was observed in the T1 injected group of mice. At the cytotoxic agent treatment injected group shows ($p<0.05$) level of significance.

Table 70: Effect on cannabis extract on tumor volume, pack cell volume and tumor cell count

Group	Tumor volume (ml)	Pack cell volume (ml)	Tumor cell count $\times 10^7$ cells/ml/mice		P-value
			Viable	Nonviable	
EAC	3.68 $\pm$ 0.13 ^a	1.60 $\pm$ 0.4 ^b	8.31 $\pm$ 1.02 ^c	0.36 $\pm$ 0.01 ^a	0.01
Cytotoxic	1.10 $\pm$ 0.04 ^b	0.37 $\pm$ 0.01 ^a	3.11 $\pm$ 0.79 ^c	2.33 $\pm$ 0.2 ^b	0.05
T1	3.63 $\pm$ 0.21 ^b	2.11 $\pm$ 0.23 ^a	2.55 $\pm$ 0.31 ^a	0.33 $\pm$ 0.10 ^a	0.01
T2	6.41 $\pm$ 1.07 ^b	3.47 $\pm$ 0.11 ^a	3.21 $\pm$ 0.02 ^a	0.11 $\pm$ 0.01 ^c	0.01
T3	4.22 $\pm$ 1.02 ^b	2.27 $\pm$ 0.21 ^a	4.01 $\pm$ 0.02 ^a	0.11 $\pm$ 0.03 ^c	0.01

Values= Mean $\pm$ SE, ^{abc} values having different superscripts in the same row differed significantly. T0, T1, T2, and T3 indicate the control, 5mg/kg, 10mg/kg, and 15mg/kg by body weight of mice treatment groups. SE=Standard error of the mean, P-value= probability value.

4.2.7.5 Cytopathological Study

Ascitic fluids were collected after sacrificing the mice. The image shows that carcinoma-type cells were seen under the light microscope 400X view.

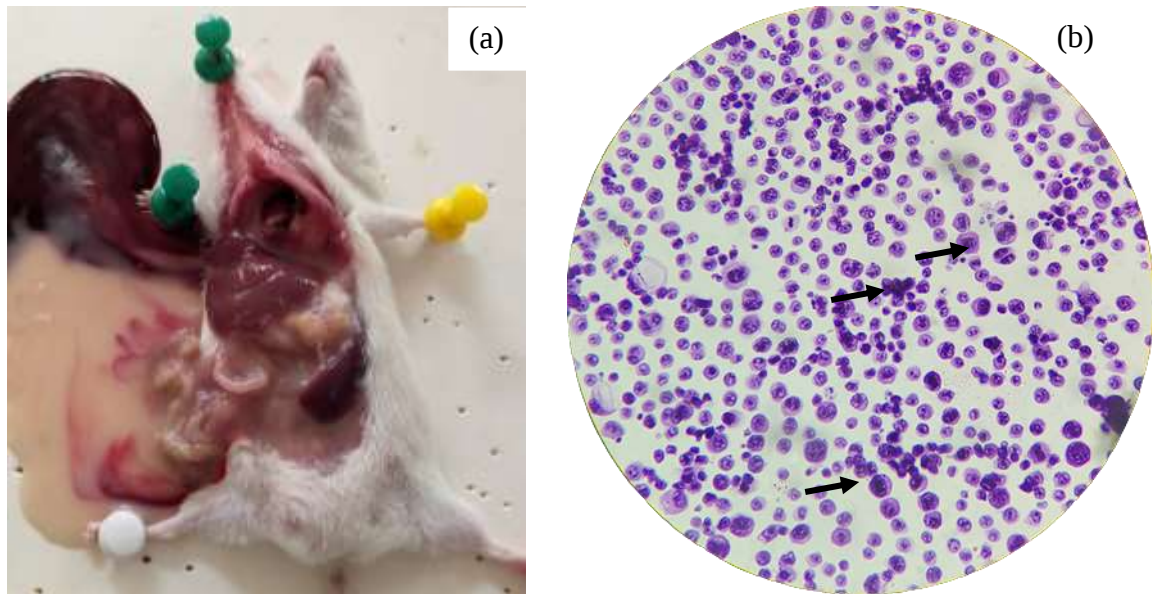


Figure 49: The images show the effects of cannabis extract on cytological changes of ascitic fluids at 21 days of treatment after EAC inoculation. For cytological observations (a) mice were sacrificed for fluid collection, (b) using H & E dyes, fluids cytology. Marking areas indicate cancerous cells.

4.2.7.6 Histopathological Study

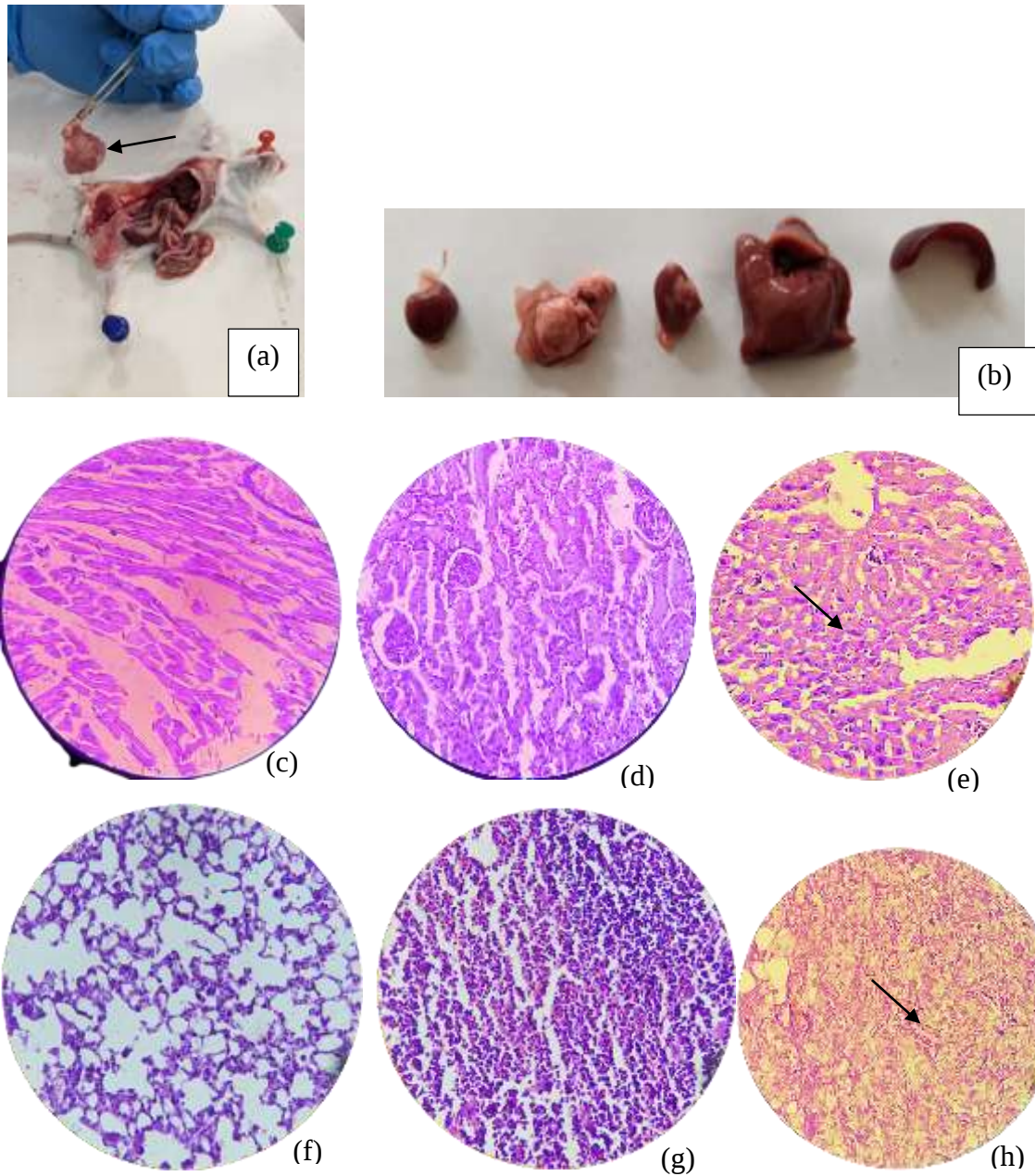
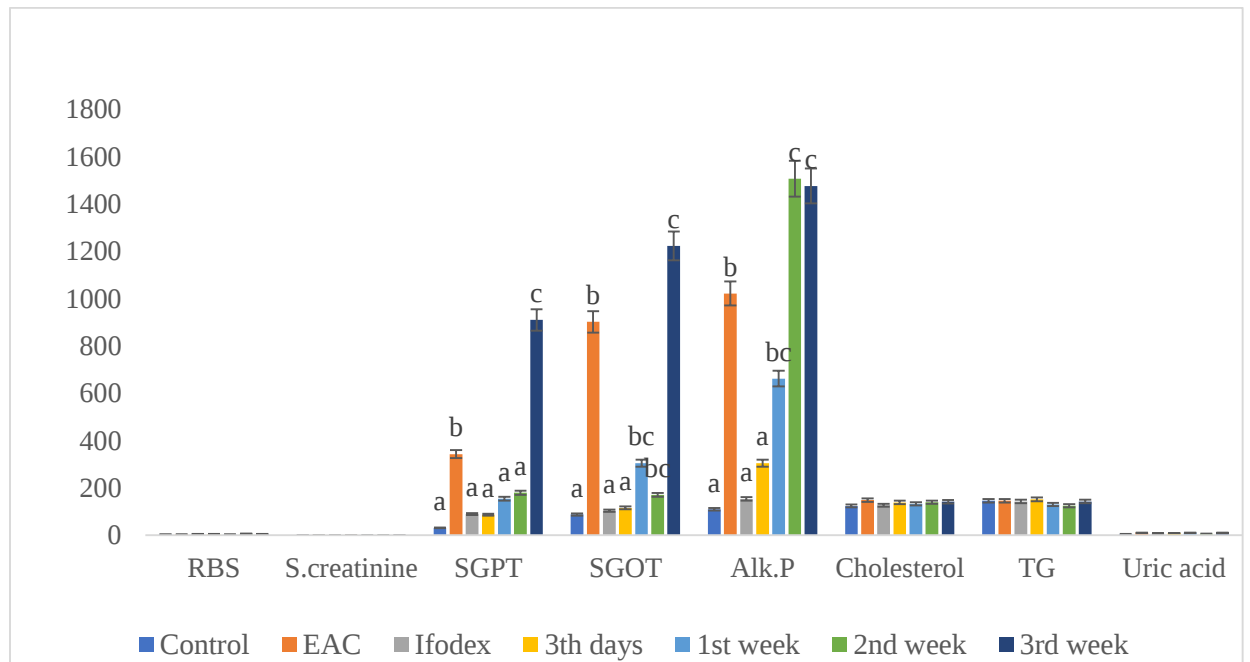


Figure 50: The images show the effects of cannabis extract on cellular changes of main organs and tumor at 21 days of treatment after EAC inoculation. For histopathological observation (a) mice were sacrificed, the marked area indicated a tumor, (b) the main organ (heart, kidney, liver, lung, pancreas and tumor) was surgically removed, (c) the heart, (d) kidney, (e) liver, (f) lung, (g) pancreas histopathological 400x observation under light microscope. The marking area indicates carcinoma-type cells on the tumor.

4.2.8 Biochemical profile interpretations

The effects of cannabis extract as cancer treatment of biochemical profile interpretations are given the figure no. 51. In this case, RBS, serum creatinine, serum cholesterol, serum triglyceride, and serum uric acid results had not shown significant ($p < 0.05$) variations among the control, EAC, Ifodex, 3rd day, 1st, 2nd, and 3rd-week groups respectively. Significant variations ($p < 0.01$) were observed in the SGPT and SGOT values compared to the other groups. The highest value of SGPT in 3rd week ($910 \pm 102.4 \text{ U/L}$) was significantly different from the lowest value ($32 \pm 0.99 \text{ U/L}$). There were no significant ($p < 0.01$) differences observed among the group of 1st week and 2nd week of observation. The highest value of SGOT in 3rd week ($1223 \pm 201.3 \text{ U/L}$) was significantly varied from the lowest value of control ($88 \pm 1.05 \text{ U/L}$). But there were no significant differences observed at the ifodex and 3rd days of observation groups. Alkaline phosphatase value shows ($p < 0.001$) significant variation among the other groups of observation. The highest value in 2nd week ($1507 \pm 232.2 \text{ U/L}$) of alkaline phosphatase was significantly ($p < 0.001$) varied from the lowest value ($110 \pm 10.2 \text{ U/L}$) in the control group.

Figure 51: The effects of cannabis extract as cancer treatment of biochemical profile interpretations.

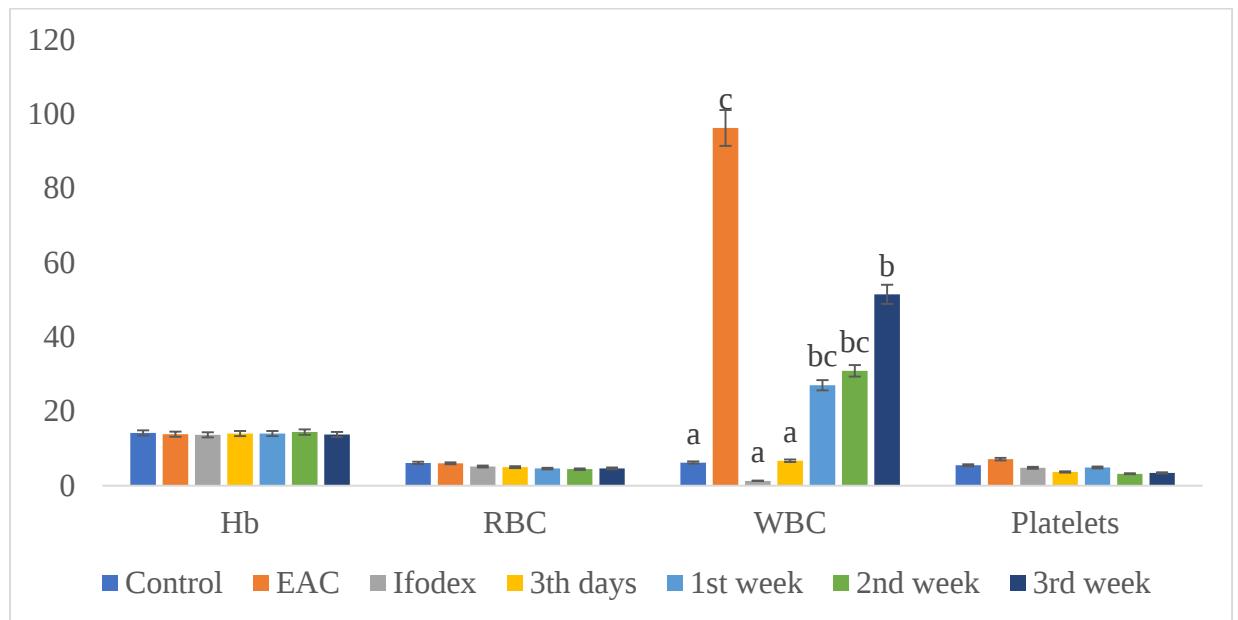


^{abc} values having different superscripts in the same row differed significantly.

4.2.9 Hematological profile interpretations

The effects of cannabis extract as cancer treatment of hematological profile interpretations are given the figure no. 52. There were no significant ($p < 0.05$) variations observed on Hb, RBS, and platelet count. WBC count shows ($p < 0.001$) significant variation among the groups of control, EAC, ifodex, 3rd day, 1st week, 2nd week, and 3rd week of observation. The highest value at EAC ($96.2 \pm 13.22 \times 10^3/\text{cmm}$) of WBC count was significantly ($p < 0.001$) varied to the lowest value ifodex ($1.29 \pm 0.01 \times 10^3/\text{cmm}$). There were no significant ($p < 0.001$) variations observed in the 1st week and 2nd week of observation.

Figure 52: The effects of cannabis extract as cancer treatment of hematological profile interpretations.



^{abc} values having different superscripts in the same row differed significantly.