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# EVALUATION OF ETHANOLIC LEAF EXTRACT OF *CYNODON DACTYLON* AND ITS EFFECT ON AFLATOXIN INTOXICATED MALE ALBINO RATS

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**ABSTRACT:** Aflatoxins are unavoidable food contaminant and reducing their *in vivo* toxicity is of major interest. The potential of *Cynodon dactylon* was evaluated for reducing the aflatoxin induced toxicity in rats. The present investigation was an attempt to evaluate the possible ameliorative effects of *C. dactylon* on aflatoxins induced serological and biochemical changes in liver of rats. In the current study, toxicity was developed by oral administration of aflatoxin at a dose of (100 µg/kg body weight) for 30 days in male rats. *C. dactylon* (500 mg/kg body weight) was given simultaneously for 30 days. Administration of *C. dactylon* lowered the level of lipid peroxidation and enhanced the antioxidant status of animal. It can be concluded that the *C.dactylon* acts as an effective compounds playing an important role in reduction of hepatotoxicity and antioxidative property. In along with, a significant amelioration in lipid peroxidation in liver by increasing the contents of GSH and activities of SOD antioxidant has been occurred compared to control. In conclusion, *Cynodon dactylon* was found to be safe and successful agent counteracting the aflatoxins toxicity and protected against the toxicity induced by aflatoxin. However, it suggests that a dose adjustment may be necessary to optimize the effects in clinical settings.

**KEYWORDS:** Aflatoxin, *Cynodon dactylon*, hepatotoxicity, enzyme activity, Biochemical studies.

### I. INTRODUCTION

The word “aflatoxin” comes from a = *Aspergillus*, fla = flavus and toxin = venom. Aflatoxins (AF) are fungal secondary metabolites that form a group of toxic compounds that chemically correspond to furan coumarins. AF were discovered in Great Britain in 1960, after the death of one hundred thousand turkeys that were fed with AF contaminated peanuts from Brazil, the flour was contaminated with the mould *Aspergillus flavus*.

Humans are continuously exposed to varying amounts of chemicals that have been shown to have carcinogenic or mutagenic properties in environmental systems. Exposure can occur exogenously when these agents are present in food, air or water, and also endogenously when they are products of metabolism or pathophysiologic states such as inflammation. Great attention is focused on environmental health in the past two decades as a consequence of the increasing awareness over the quality of life due to major environment pollutants that affect it. Studies have shown that exposure to environmental chemical carcinogens have contributed significantly to cause human cancers, when exposures are related to life style factors such as diet.

Aflatoxin is an environmental toxicant which frequently contaminates foodstuffs in different parts of the world. Literatures have shown that complete eradication of aflatoxins from foodstuffs is difficult to attain because of a combination of factors such as climatic conditions that favour easy growth, proliferation and toxin production by fungi [1]. Aflatoxins are well known for their hepatotoxic and hepatocarcinogenic effects [2]. AFB1 is activated to AFB1-8,9-epoxide and forms adduct primarily at N-7 position of guanine and is responsible for its mutagenic and carcinogenic affects [3]. In goslings and chickens [4], experimentally studied the distribution of AFB1 where according to AFB1 concentration, the organs and tissues were categorized in the order from high to low concentrations as follows: the gonads, the parenchymatous organs (Liver and kidney), the lymphopoietic organs (spleen, bursa and thymus), the endocrine glands, the muscles and the lungs, while the brain had the lowest concentration. Also, it has been reported that aflatoxins have a deleterious effect on the reproductive systems of a wide spectrum of domestic animals [5]. Naidu [6] observed multifocal hepatic necrosis, bile ductular proliferation, areas of altered hepatocytes, neoplastic nodules and hepatocellular carcinoma constituted the total spectrum in both adult and newborn rats exposed to AFB1. Meanwhile,

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progressive hepatic degeneration, necrosis and bile duct hyperplasia were the constant pathological changes observed in rats and chickens [7]. In addition, aflatoxin administration induced degenerative changes in the hepatic and renal tissues of rats [8]. Moreover, AFB induced mononuclear cell infiltration and/or focal lymphoid cell accumulation in the intertubular areas of the tests and epididymis; degeneration and desquamation in the epithelium and decrease in the size and thickness of the germinative layer of the seminiferous tubules and lowered plasma testosterone levels in adult roosters [9].

*Saccharomyces cerevisiae* has proven to benefit health in several ways including stimulation of the growth of intestinal microflora in mammals, pH modulation in ruminants, improvement of reproductive parameters in milk cows and fowls, as well as reduction in the number of pathogenic microorganisms in monogastric animals [10-11]. In recent years, yeasts have also been reported to have high adsorption ability against mycotoxins in aqueous solution; *S. cerevisiae* had the potential to bind aflatoxin [12-13]. The yeast *S. cerevisiae* was reported to be the most efficient microorganism for aflatoxin quenching [14].

*Cynodon dactylon* is hardy, perennial grass, very variable, with long rapid growing, creeping runner or stolons, rooting at nodes, forming a dense tuft on the surface of the soil, runners sometimes 20m long, 2-6mm broad, flat or sometimes folded or convolute; inflorescence on culms 15cm to 1m tall consisting of 2-12 spikes arranged star like at apex of stem; spikes 2.5-10cm long with numerous spikelets, arranged in 2 rows on one side of spike; spikelets flat, 2-2.5mm long, awnless, with 1 floret; glumes unequal, the upper longer and one third to three fourth length of floret. The grass grows throughout India ascending up to a height above sea level of 8000ft. A hardy perennial grass with creeping culms, root nodes and forming spreading mats on the surface of the soil. It is abundant on road sides and paths, and readily takes possession of any uncultivated area. It flowers nearly throughout the year [15-17].

*Cynodon dactylon* possesses immense medicinal value and may be applied both externally as well as internally [18]. The plant possesses antiviral and antimicrobial activity [19]. Decoctions of root are used in secondary syphilis and irritation of urinary organs [20]. The plant is astringent, sweet, cooling, haemostatic, depurative, vulnerary, constipating, diuretic and tonic and is useful in impaired conditions of pitta and kapha, hyperdipsia, burning sensation, haemoptysis, haematuria, haemorrhages, wounds, leprosy, diarrhoea, dysentery, conjunctivitis, vomiting etc. [21]. Therefore, in the present study was aimed to investigate whether intoxication of aflatoxin induces oxidative stress and if so, *C. dactylon* reduces the aflatoxin intoxicated oxidative stress in the liver of rats.

## II. MATERIALS AND METHODS

For the present study, the mature green leaves of *Cynodon dactylon* belongs to family Poaceae (Grass family) were collected from in and around area of Thanjavur District, Tamil Nadu, South India. The plant was identified with the help of manual of Tamil Nadu and Karnatic flora [22-23] with standard references [24].

**Preparation of plant extract :** The *Cynodon dactylon* was collected, washed, cut into small pieces and dried at room temperature ( $28\pm 1^{\circ}\text{C}$ ) for two weeks and made into powder for further analysis. The aerial parts were washed under tap water, air dried, homogenized to fine powder and stored in airtight bottles. Ten grams of dried powder was first defatted with petroleum ether and then extracted with ethanol by using Soxhlet apparatus. The solvent was evaporated to dryness and the dried crude extract was stored in air tight bottle at  $4^{\circ}\text{C}$ . The percentage yield of ethanol extract was 35%. The ethanol extract of *C. dactylon* was used for the entire study.

**Experimental Animals :** Adult Wistar albino rats weighing of 200 - 220 gm breed in the Central Animal House, Department of Pharmacology, Periyar College of Pharmaceutical Sciences, Trichy - 21, were used in this study. They were housed in Tarson's polypropylene cages with metal grill tops and provided with food and water *ad libitum*. They were maintained in a controlled environment under standard conditions of temperature and humidity with alternating light/dark (LD 12:12) cycle. In the laboratory, rats were fed with standard rat pellet diet. The animals used in the present study were approved by the ethical committee, Department of Pharmacology, Periyar College of Pharmaceutical Sciences, Trichy - 21, India. The Registration Number is CPCSEA/265 and was in accordance with the guidelines of the National Institute of Nutrition (NIN), Indian Council of Medical Research (ICMR), Hyderabad, India.

**Acute Toxicity Study :** Acute oral toxicity study was performed as per OECD-404 guidelines (1987). 10 rats/group (5 males and 5 females) were used for the study. Group 1 was control group and other three groups were that of WFM at

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different doses (1000, 2000, and 4000 mg/kg body weight). Single dose of the extract was administered orally to each animal. Signs of toxicity, body weight, feed and water consumption of each animal was observed every day for 14 days. **Experimental design :** The animals were randomly divided into four groups, each containing six animals. Four groups (Group I, Group II, Group III and Group IV) of rats, six rats in each group were taken. Group – I: Served as normal, which received, feed and water only. Group – II: Animals of this group were orally administered 100 µg/kg of body weight of aflatoxin along with formulated feed for 30 days. Group – III: Animals of this group were orally administered 100 µg/kg of body weight of aflatoxin along with formulated feed. Then the animals were treated with the aqueous extract of *Cynodon dactylon* daily for 30 days at concentration of 500mg/kg of body weight. Group – IV: Animals of this group were orally administered 500 µg/kg of body weight of aflatoxin dissolved in formulated feed. Then the animals were treated with Silymarin for 30 days at concentration of 25 mg/kg of body weight. After 31<sup>st</sup> days of treated animals were fasted for 12hours after the last dose of drug treatment and were sacrificed cervical decapitation under mild chloroform anesthesia. The blood was collected for serum separation. The organs were excised and they were washed in ice-cold saline until homogenized. Liver-10%, homogenate was prepared in 0.1ml Tris HCl buffer P<sup>H</sup> 7.4. The serum separated by the centrifugation process and was used for following estimation.

At the end of the study, all animals were fasted for 12 h and then under mild ether anesthesia, animals were sacrificed and blood samples were collected. Blood was collected immediately into tubes containing EDTA for analysis of hematological parameters viz. hemoglobin, total red blood cells (RBC), packed cell volume, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), total white blood cells (WBC), neutrophils, lymphocytes, eosinophils, monocytes, basophiles, total platelet count [25] using hematology analyzer Sysmex XS800i.

**Biochemical parameters** like serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvate transaminase (SGPT) by the methods of Reitman & Frankel [26], alkaline phosphatase [27], total bilirubin [28] and protein [29] were analyzed. Reduced glutathione (GSH) was estimated using DTNB [30]. The blood glutathione was estimated by the method of Beutler et al.[31]. The catalase was determined by the methods of Aebi [32]. The activity of superoxide dismutase was assayed by the method of Woolliams [33]. The concentration of Thiobarbutiric acid reactive substances (TBARS) was measured in liver using the method of Ohkawa et al.[34].

### III. RESULTS

The use of herbal preparations in the treatment of diseases is very common in the rural communities of world. *Cynodon dactylon* is frequently used for the treatment of nausea, diarrhea, piles and juice is useful in urine related disorders and urinary tract infections. It is also useful in stopping haemorrhages occurring in body. The treatment with the extract did not decrease water and food consumption rats. The body weight of the rats treated with alcoholic extract once a day during 15 days (sub-acute treatment) did not show any significant change when compared with the control group, although had a tendency to decrease body weight (500 mg/kg). This decrease can be associated with the decrease of liver weight at the dose of 500 mg/kg in comparison with the control group without any concomitant alteration in the activity of alanine aminotransferase, aspartate aminotransferase and alkaline phosphatase. Estimation of the serum activity of total bilirubin, protein, alkaline phosphatase, alanine aminotransferase and aspartate aminotransferase is one of the most widely used means of measuring hepatocellular injury (Table 1).

**Table 1. Effect of *Cynodon dactylon* extracts on some biochemical and serum marker enzyme parameters in aflatoxin intoxicated rats**

Treatment group	SGOT (IU/L)	SGPT (IU/L)	ALP (IU/L)	Bilirubin (mg/dl)	Protein (g/dl)
Normal Control	121 ± 2.11	38.2 ± 1.2	115 ± 2.2	0.85 ± 2.15	7.5 ± 1.22
Aflatoxin control (500µg/kg of aflatoxin)	198 ± 2.13	99.5 ± 1.9	258 ± 2.9	2.89 ± 2.35	4.5 ± 1.18
500µg/kg of aflatoxin + 500 mg/kg extract of <i>C. dactylon</i>	131 ± 2.25	46.1 ± 1.5	145 ± 2.5	1.22 ± 2.14	6.5 ± 1.32
500µg/kg of aflatoxin + 25 mg/kg of silymarin	135 ± 2.09	43.5 ± 1.5	137 ± 2.3	0.98 ± 2.18	6.9 ± 1.41

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Effect of aflatoxin and *Cynodon dactylon* leaf extract either alone or in different combination on hematological variables in albino rats are illustrated in table 2. Supplementation of aflatoxin led to significant fall ( $P < 0.01$ ) in Hb, PCV, RBC, lymphocyte count and remarkable rise ( $P < 0.01$ ) in WBC, platelet and neutrophil count as compared to respective values of normal rats. Co-administration of different treatment of *C. dactylon* leaf extract along with aflatoxin led significant improvement in Hb, RBC content and brought them back near to normal. Whereas, PCV and lymphocyte count were also significantly elevated ( $P < 0.01$ ) in these groups as compared to group aflatoxin treated rats. Moreover *C. dactylon* leaf extract led to significant fall ( $P < 0.01$ ) in WBC, platelet and neutrophil count as compared to respective values of aflatoxin alone receiving group of rats.

**Table 2. Effect of *Cynodon dactylon* extract on haematological variables in aflatoxin intoxicated rats.**

Parameters	Normal Control	Aflatoxin treated groups		
		(500µg/kg of aflatoxin)	500 mg/kg <i>C. dactylon</i>	25 mg/kg Silymarin
RBC ( $10^6/\mu\text{l}$ )	7.48 ± 0.18	4.54 ± 0.12	6.62 ± 0.17	7.02 ± 0.15
Hb (g/dl)	13.8 ± 0.32	9.2 ± 0.26	11.9 ± 0.12	12.2 ± 0.21
PCV (%)	45.5 ± 0.21	21.8 ± 0.37	39.2 ± 0.15	41.1 ± 0.18
MCV (fL)	53.1 ± 0.25	44.2 ± 0.32	51.1 ± 0.18	51.8 ± 0.42
MCH (pg)	17.5 ± 0.31	14.6 ± 0.25	16.9 ± 0.33	17.1 ± 0.22
MCHC (g/dl)	35.4 ± 0.18	27.5 ± 0.16	33.4 ± 0.21	34.2 ± 0.18
Lymphocyte(%)	86.5 ± 0.15	70.2 ± 0.17	82.5 ± 0.15	82.8 ± 0.25
Platelet ( $10^3/\mu\text{l}$ )	894 ± 1.05	1315 ± 1.08	1195 ± 1.32	1225 ± 1.15
WBC ( $10^3/\mu\text{l}$ )	7.25 ± 0.12	15.5 ± 0.31	9.01 ± 0.43	8.87 ± 0.18
Neutrophils (%)	18.5 ± 0.25	23.2 ± 0.24	19.8 ± 0.08	22.5 ± 0.33

RBC - red blood cell; Hb - hemoglobin; PCV - packed cell volume; MCV - mean corpuscular volume; MCH - mean corpuscular hemoglobin; MCHC - mean corpuscular haemoglobin concentration; WBC - white blood cell

Antioxidant activity of *Cynodon dactylon* leaves extract was studied by LPO method and dose 500mg/kg produced significant antioxidant activity as shown in Table 3. The maximum antioxidant activity was exhibited at dose 500mg/kg in alcoholic extract of *C. dactylon*. The results of the present study suggests that co-administration of extract of *C. dactylon* ameliorates antioxidant status in aflatoxin induced oxidative stress in the liver of rats as evidenced by decrease in the lipid peroxidation products and increase in the activity levels of antioxidant enzyme and reduced glutathione levels. There are changes in the level of GSH and TBARS in the liver homogenate of normal and experimental rats. The activity of GSH was observed to changes significantly in aflatoxin intoxicated rats. This indicated that *C. dactylon* improved the enzymatic antioxidant status in rat liver since it is known that a marked increase in SOD and CAT activity can offer first line protection against the damaging effects of superoxide radicals in the liver.

**Table 3. Effect of *Cynodon dactylon* extract on antioxidant status in the liver of aflatoxin intoxicated rats**

Treatment group	GSH (µ mole/g of tissue)	TBARS (nmoles/ml)	LPO(µg/mg/protein)	SOD (µ mole/g of tissue)	Catalase (µ mole/g of tissue)
Normal Control	249 ± 1.20	6.22 ± 1.27	7.45 ± 2.12	14.3 ± 0.32	220 ± 2.25
Aflatoxin control (500µg/kg of aflatoxin)	125 ± 1.59	15.1 ± 1.35	19.8 ± 2.29	4.50 ± 0.54	123 ± 2.34
500µg/kg of aflatoxin + 500 mg/kg extract of <i>C. dactylon</i>	226 ± 1.65	8.93 ± 1.49	9.50 ± 2.46	11.8 ± 0.25	186 ± 2.23
500µg/kg of aflatoxin + 25 mg/kg of silymarin	238 ± 1.55	7.75 ± 1.23	8.95 ± 2.37	12.5 ± 0.16	197 ± 2.32



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## III. DISCUSSION

A lot of medicinal plants, traditionally used for thousands of years, by the Indian traditional health care system (ayurvedic) named 'Rasayana' for their antioxidative properties. *Cynodon dactylon* was a very good antioxidant and hepatoprotective agent [35-36]. *Cynodon dactylon* (500mg/kg) increased cell viability of rat hepatocytes being treated with aflatoxin intoxicated rats. The present study was carried out to evaluate the hepatoprotective activity of *Cynodon dactylon* against aflatoxin induced hepatocellular degenerative in albino rats. The effectiveness of this medicinal plant was screened by assessing biochemical changes of different groups of experimental animals. *Cynodon dactylon* possessed very high levels of alkaloids and flavonoids and are employed in medicinal uses. The plants studied here can be seen as a potential source of useful drugs. The results of biochemical parameters revealed the elevation of enzyme level in aflatoxin treated group, indicating that aflatoxin induces damage to the liver (Table 1). Liver tissue rich in both transaminases increased in acute hepatic diseases SGPT, which is slightly elevated by cardiac necrosis is a more specific indicator of liver disease [37-38]. A significant reduction ( $P < 0.005$ ) was observed in SGPT, SGOT, ALP, total bilirubin and protein levels in the groups treated with silymarin and extract of *Cynodon dactylon*. The results confirmed that the enzyme levels were almost restored to the normal levels [39-40].

Aflatoxin has a harmful and stressful influence in the serum, hepatic and renal tissue. In the present study, aflatoxin treatment was found to cause an increase in ALT, AST and alkaline phosphatase levels. These results may indicate degenerative changes and hypofunction of liver [41]. The activity of ALT and AST are sensitive indicators of acute hepatic necrosis. The reduced level of total protein is indicative of the toxic effect of Aflatoxin in serum and blood. Aflatoxin is known to impair protein biosynthesis by forming adducts with DNA, RNA and proteins, inhibits RNA synthesis, DNA-dependent RNA polymerase activity and causes degranulation of endoplasmic reticulum. Reduction in protein content could also be due to increased necrosis in the liver. Thus reduction in protein biosynthesis as well as increased necrosis could be responsible for a decrease in protein content. Many other investigators have also reported a decrease in protein content in skeletal muscle, heart, liver and kidney of aflatoxin fed animals [42].

In the present investigation, *Cynodon dactylon* significantly decreased serum alkaline phosphatase (ALP) of rat after 30 days of experiment. Decreased level of ALP with *C. dactylon* in this experiment is similar to previously reported by Pal et al. [43]. ALP is a sensitive marker of liver damage. In hepatitis, hepatocytes start to die due to liver damage and there by ALP concentration in the bile ducts increases. Liver is the most important and main part of the animal body. It is highly affected primarily by toxic agents and that is why the above-mentioned parameters have been found to be of great importance in the assessment of liver damage. The abnormal high level of serum ALT, AST, ALP and protein observed. In our study (Table 1) are the consequence of aflatoxin induced liver dysfunction and denotes the damage to the hepatic cells. Treatment with *Cynodon dactylon* reduced the enhanced level of serum ALT, AST, ALP and protein, which seem to offer the protection and maintain the functional integrity of hepatic cells. This result is support by stimulations of protein synthesis have been advanced as a contributory hepatoprotective mechanism, which accelerates the regeneration process and the protection of liver cell [36,44].

The results of present study show that aflatoxin administration lead to a significant increase in LPO level at the end of the experimental period. The possible reason is that aflatoxin supplementation might induce the generation of oxygen centered radicals that in particular attack the cell membrane rich in PUFA, initiating a chain reaction leading to peroxidation of fatty acids [45]. This observation is in agreement with previous findings of Sharma and Gupta [46]. The aflatoxin induced alteration in hepatic and renal antioxidants status may therefore be considered as manifestation of increased oxidative stress caused by aflatoxin and its metabolites. The endogenous antioxidant system may frustrate the reactive oxygen species (ROS) thereby reduce the oxidative stress with the help of enzymatic antioxidant such as SOD and CAT [47].

In general a balance exists between the generation of lipid peroxidation products viz., reactive oxygen species (ROS) and the level of endogenous antioxidants during physiological conditions which serve to protect tissue from oxidative damage. Disruption of this balance, either through increased production of ROS or decreased levels of antioxidants, results in a condition referred to as "oxidative stress". Thus, evaluation of lipid peroxidation, antioxidant enzyme status of reduced glutathione content in biological tissue has been always used as markers for tissue injury and oxidative stress. Lipid peroxidation can cause changes in membrane fluidity, permeability and increase the rate of protein degradation, which eventually lead to cell lysis. It is well acknowledged that free radical scavengers such as SOD, CAT and GSH and metabolism regulatory enzymes such as GSH-Px, GR and GST can protect the cellular

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system from deleterious effect of free radicals [48]. SOD, as a first line defense antioxidant enzyme plays an important role in the dismutation of superoxide and thereby leads to hydrogen peroxide which is eventually neutralized by GPx and catalase. In the present study, there was a significant increase in the lipid peroxidation products with a significant decrease in the activity levels of antioxidant enzymes such as SOD and catalase, antioxidant content reduced glutathione in the liver of rats intoxicated with aflatoxin. The decrease in the activity levels of SOD and catalase indicates accumulation of superoxide ions and also hydrogen peroxide ions, which might lead to an observed increase in the lipid peroxidation products in the liver of rats intoxicated with aflatoxin.

Effect of aflatoxin and *Cynodon dactylon* leaf extract either alone or in different combination on hematological variables in albino rats are illustrated in table 2. Supplementation of aflatoxin led to significant fall ( $P<0.01$ ) in Hb, PCV, RBC, lymphocyte count and remarkable rise ( $P<0.01$ ) in WBC, platelet and neutrophil count as compared to respective values of normal rats. Co-administration of different treatment of *C. dactylon* leaf extract along with aflatoxin led significant improvement in Hb, RBC content and brought them back near to normal. Whereas, PCV and lymphocyte count were also significantly elevated ( $P<0.01$ ) in these groups as compared to group aflatoxin treated rats. Moreover *C. dactylon* leaf extract led to significant fall ( $P<0.01$ ) in WBC, platelet and neutrophil count as compared to respective values of aflatoxin alone receiving group of rats. Administration of *Cynodon dactylon* leaf extract was effective in reducing the adverse effect of aflatoxin on hemopoietic system supporting the hypothesis that plant extract exhibits effective antioxidant property. The plant extract showed improvement in biochemical variables with an increase in TEC, Hb and PCV in current study indicated that component present in *Cynodon dactylon* leaf extract prevent oxidative damage, such as lipid peroxidation associated with many diseases, including cancer and immune deficiency.

Aflatoxin has also harmful and stressful effect on blood variables, serum variables and hepatic tissues. In present study reduced level of total erythrocyte count (TEC) was observed in aflatoxin treated rats. The mechanism of action by which aflatoxin aggravated pathogenesis of anemia could involved down-regulation of erythropoietin activity [49]. Decreased level of TEC has been contributed to reduction of erythropoiesis in bone marrow and showed rapid rate of destruction of peripheral RBC in spleen. Decreased level of Hb can be related with reduced size of RBC, impaired biosynthesis of haem in bone marrow or due to reduction in rate of formation of TEC [50]. There was a significant increase in WBC count, which mainly consisted of neutrophils. The increase level of WBC and percentage of neutrophils suggest that aflatoxin elicited an inflammatory response and cause alteration in bone marrow and function of immune system [41]. Animals treated with aflatoxin also showed lower level of PCV due to development of anemia in aflatoxicosis bearing mice [50].

## IV.CONCLUSION

In rats with damaged liver the treatment with *Cynodon dactylon* herb shows decrease in liver enzymes and biochemical level with extremely significant, while there is an improvement in haemoglobin level. *C. dactylon* exert its protective effect against aflatoxin induced toxicity by modulating the extent of lipid peroxidation and augmenting antioxidant defense system. Thus, the results of the present study suggest that *C. dactylon* can be used as a dietary supplement in order to prevent aflatoxin induced oxidative stress. The *C. dactylon* could become helpful for patients with damaged liver possibly by reducing liver enzymes and biochemical parameters. It increases haemoglobin level and possibly improves in life style of such patients. These results finding shows that *C. dactylon* extract have the ability to rectify hepatic damage or toxicity. Hence it is advised that if one happens to take any liver toxic drugs in overdose they can consume *C. dactylon* extract as a hepatoprotective agent. Thus always have in mind that "Prevention is better than cure".

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