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EFFECT OF NUTRITION ON HALFA BARR (*Cymbopogen proximus)* AND DAMSISSA (*Ambrosia Maritima)* ON INFECTED EXPERIMENTAL RATS OF KIDNEY AND LIVER DISEASES

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ABSTRACT

The current work was carried out to study the effect of nutrition on Halfa barr (***Cymbopogen proximus)*** and Damsissa (***Ambrosia Maritima)*** elhanolic extracts on experimental rats of induced to kidney and liver diseases. eighty-eight male albino rats 195 + 5g. were used in this study The animals were divided into 11 similar groups group1 untreated group (Control untreated group), group2, (positive control liver, infected rats), group3 (liver infected rats receiving normal diet+oral (1ml) Halfa extract), group4 (liver infected rats receiving normal diet+oral (2ml) Halfa extract), group5 (liver infected rats receiving normal diet+oral (1ml) Damsissa extract), group6 (liver infected rats receiving normal diet+oral (2ml) of Damsissa extract), group7 (positive control kidney, infected rats), group8 (kidney infected rats receiving normal diet+oral (2ml) of Halfa extract), group9 (kidney infected rats receiving normal diet+oral (4ml) of Halfa extract), group10 (kidney infected rats receiving normal diet+oral (2ml) of Damsissa extract), and group11 (kidney infected rats receiving normal diet+oral (4ml) of Damsissa extract). During the whole experimental period blood samples were collected and serum was analyzed for concentration of, cholesterol, triglyceride, HDL, LDL, VLDL, urea, uric acid, creatinine, ALT, AST and glucose. At the end of the experiment, rats were scarificed to obtain the kidneys, livers, hearts, pancreases, and spleen. Results indicated that treatment of rats with halfa and damsisa extracts alchohol and water improve in function of liver, kidney, heart, pancreases, and spleen at 1ml and 2ml extracts of halfa alchohol extract, on the other hand at 2 ml and 4 ml extracts of damsissa water extract.

Key words: *Halfa (Cymbopogen proximus), Damsisssa (Ambrosia Maritima), Kidney, Liver diseases and lipids profile.*

INTRODUCTION

The Ancient Egyptians were aware of a vast number of medical plants (herbs) and their products. where, a great number of medical plants (herbs) were brought by the Arabs **(Sayed, 1980).** The class Cymbopogon, an individual from the family Gramineae, is broadly disseminated in subtropical, and tropical districts. Many species yield essential oils used in perfumery, soap, and other related industry products **(Leimanna *et al.,* 2009).**

Recently, interest has increased in alternative therapies extracted from plants. In developing countries about 65-80% of the world's population living depends on medical plants (herbs) to maintain health. Because of cultural acceptability, few side effects, and compatibility with the human body, according to the World Health Organization (WHO). However, the last few years have seen a significant increase in its use in the developed world **(Kamboj, (2000); Chmielewski and Migdal, (2005)).** Traditional medicine has been defined by (WHO), where it is a therapeutic practice that have been in existence, for hundreds of years, before the discovery of the modern medicine **(Kamboj, 2000).**

Cymbopogon Proximus is of huge interest due to its commercially valuable essential oils which it is widely used in traditional medicine and could be the alternative way for the treatment of chronic diseases such as chronic kidney failure as well as it is widely used as an anti-spasmodic, ant-intestinal ailment problems, protection against fever, anthelminthic, and anti-malarial **(Marwat *et al.,* 2009).**

The plant Cymbopogon Proximus is widely grown in Africa, also in temperate, and tropical Asia. In addition, it is found in Central and Northern Sudan **(Clayton *et al.,* (2005); Eltahir and Ereish, (2010)).**

One of the logical reasons for using this plant in the medical fields as well as alternative medicine is due to its containing flavonoids, saponins, glycosides, tannins, and terpenes **(Selim, 2011)**.

The Halfa-bar, a conventionally used medicinal herb supposed to be effective against renal spasms and ureteric calculi, as well as does not have enough appropriate toxicity tests **(Evans et al., 1982).**

Ambrosia Maritima belongs to the family (Asteraceae). (Damsissa) is a plant distributed locally on the Nile delta, canal banks, Oases, the Mediterranean region, and regionally in Egypt. This threatens this species in addition to the continuous collection for folk medicinal uses. It was found that it contains coumestans, flavonoids, isoflavons as other phytoestrogens.

The present study was mainly conducted to examine the effects of nutrition on *Cymbopogen Proximus* and *Ambrosia Maritima* alcoholic and water extract on infected experimental rats of Kidney and Liver disease.

MATERIALS AND METHODS

Materials:

Plants: products of (*Cymbopogen Proximus*.) and (*Ambrosia Maritima*) such as stems and leaves were obtained from Medicinal and aromatic plants research – Horticulture Research Institute – Agreicultural Research center –Giza

Chemical: Folin Ciocalten phenol reagent (2N), Sodium Carbonate (99.8%) ($NaCa_3$, sodium nitrite ($NaNO_2$), Alanonium chloride ($AlCl_3$), sodium hydroxide (NaOH) and 2, 2-Diphenyl-1-picryhydrazyl (DPPH) were purchased from Sigma-Aldrich (St. Louis, Mo, USA).

Methods:

Preparation of products powder:

After washing the products were dried by solar energy in the Central Research, Giza, Egypt. The dried products of *Cymbopogen proximus* and *Ambrosia Maritima* were fround into fine powder in an electrical grinder very well and packed in palyethylene bays and kept in the refrigerator at 4 $\pm$ 1°C.

Prepatation of extrats:

- **Ethanol Extraction of *Cymbopogen Proximus*. and *Ambrosia Maritima***

A sample weighing 1 kg was taken from the solar dried and ground aerial plants and then was extracted with 2000 ml 96% ethanol for three days by using cold maceration technique. After that the crude alcoholic extracts was obtain from the extract by filtered and concentrated it under reduced pressure using a rotary flash evaporator **(Ehssan *et al.*, 2020)**.

- **Water Extraction of *Cymbopogen Proximus.* and *Ambrosia Maritima***

The plant was grinded and the aqueous extract of Damsissa and Halfa was prepared by boiling 100 g of Damsissa and Halfa with 300 ml of tap water for 15 min and left for cooling at laboratory temperature then filtered through filter paper. Then the extract was kept in glass containers and placed in the refrigerator. Fresh extract preparation was done every two days **(Badr, 2012)**.

Biological study:

Adult male albino rats. (88 animals), weighted (195 $\pm$ 5g) were used in the present experiment. The rats were obtained from the Laboratory Animal Departments, Food Research and Technology Institute, Giza, Egypt. The animals were housed in plastic cages and fed Basal diet as reported by **(Reeves *et al.*, 1993)** and provided water and libitum for Two weeks as an adaptation period. The animal room temperature was maintained at 21 $\pm$ 2°C with time lighting 12h and relative humidity of air was 40 to 60%.

Rats Injection:

- Gentamicin (Genticyn Abbott, 80 mg/2ml) was administered at 30 and 100 mg/kg/day subcutaneously for 7 consecutive days. (**Venkatesha and Veeru, 2019)**
- Carbon tetrachloride (CCL4) of 100 % concentration dose: Carbon tetra chloride dissolved in olive oil was given by intraperitoneal (IP) injection in a dose of 0.5 mg/Kg body weight of rat twice weekly (**Iredale *et al.*, 1998).**

Experimental Design:

After the adaptation period the rats randomly divided into 11 groups as follow:

- Group $_1$ (G_1): Negative control, healthy group rats, receiving normal diet with no treatment.
- Group $_2$ (G_2): positive control liver, infected with Carbon tetrachloride (CCL4) rats receiving normal diet with no treatment.
- Group $_3$ (G_3): liver infected rats receiving normal diet and receiving oral (1ml) of Cymbopogen proximus extract.
- Group $_4$ (G_4): liver infected rats receiving normal diet and receiving oral (2 ml) of Cymbopogen proximus extract.
- Group $_5$ (G_5): liver infected rats receiving normal diet and receiving oral (1 ml) of Ambrosia maritima L extract.
- Group $_6$ (G_6): liver infected rats receiving normal diet and receiving oral (2 ml) of Ambrosia maritima L extract.
- Group $_7$ (G_7): positive control kidney, infected with Gentamicin rats receiving normal diet with no treatment
- Group $_8$ (G_8): kidney infected rats receiving normal diet and receiving oral (2 ml) of Cymbopogen proximus extract.
- Group $_9$ (G_9): kidney infected rats receiving normal diet and receiving oral (4 ml) of Cymbopogen proximus extract.
- Group $_{10}$ (G_{10}): kidney infected rats receiving normal diet and receiving oral (2 ml) of Ambrosia maritima L extract.
- Group $_{11}$ (G_{11}): kidney infected rats receiving normal diet and receiving oral (4 ml) of Ambrosia maritima L extract.

Blood samples:

The body weight was recorded weekly from 30^{th} days of experimental period, the animals anaesthetized by diethyl ether. The blood samples were collected from eye plexuses and divided into patches the second patch was collected in dry clean centrifuge glass tube with any coagulation to prepare serum by leaving the samples for 15 minutes at room temperature. Then, the tubes were centrifugation for 15 min at 3000 rpm and the clean supernatant serum was collected and kept frozen at -20°C until analysis. The carcasses were dissected and organs were cut off, washed in saline solution and weighted. Then, organs specimens were subjected for further histological examination.

Biological parameters assay:

Determination of chloesterol profile:

- Cholesterol (TC) was colorimetrically determined as according to the enzymatic method of **(Allian et al., 1974)**.
- Triglycerides (TG) were determined in serum using **(Fassati and Prenceipe, 1980)**.
- High density lipoprotein cholesterol [HDL-C] was determined using the method of **(Fruchart, 1982).**
- Low density of lipoprotein cholesterol [LDL-C] was calculated as according to **(Essam El-Din, 2012).**
- Very low density lipoprotein cholesterol [VLDL-C] was calculated as reported by **(Lee and Nieman, 1996).**

- Coronary risk index [CRI] was calculated as according **(Adeneye *et al*., 2010).**

Determination of kidney function:

- Urea was determined as carried out by **(Fawcett and Scott, 1960).**
- Serum uric acid was determined according the method of **(Barham and Trinder, 1972).**
- Serum creatinine was determined according to the method of **(Bartles *et al*., 1972)**

Liver function estimation:

- Alanine aminotransferase [ALT] of serum activity was calorimetrcally measured according to **(Reitman and Frankel, 1957).**
- Serum a spartateaminotiansferase [AST] activity was colorimetrically measured according to the method described by **(Reitman and Frankel, 1957).**

Determination of serum glucose:

- Serum glucose was determination according to the procedure of **(Trinder, 1969).**

Statistical Analysis:

The statistical analysis was carried out according to SAS (1999). Duncan's at 5% level of significance was used to compare between means **(Snedecor and Cochran, (1980). SAS, (1999)).**

RESULT AND DISCUSSION:

Part one:

Changes in body weight

The results in Table (1) illustrated that the average body weight (BW), (initial weight, final weight) of experimental rats with liver disease treated with alcoholic extract of Halfa and Damsissa was significantly ($p< 0.05$) lower than that of the normal control (Cont. -), Drastic reduction was obtained in the BW of experimental rats (G_5) (297 gm), the final weight of the experimental rats (G_5 and G_6) treated with alcoholic of Damsissa extract, was significantly ($p< 0.05$) lower than the normal control (G_1). On the other hand (G_3 and G_4) experimental rats treated with elcoholic Halfa extract improved their body weight loss when compared to the positive control (G_2).

Body weight gain (BWG) of rats on (G_4) recorded (76.51) was slightly lower than (control –) G_1 whose recorded (88.63), this indicates that G_4 experimental rats treated with 2 ml of alcoholic Half extract was slightly less efficient than negative control (-) in promoting growth. These results agree with those reported by **(Badr, 2012; Eman *et al*., 2014; Ismail, 2016; Halaby *et al*., 2018).**

Changes in organs weight

In toxicological studies show organs and relative organ weights are important criteria for evaluation of organ toxicity.

The results in Table (2) showed that effect of feeding experimental rats with liver disease on that Halfa extract and Damsissa extract, relative liver weight (RLW), and relative kidney weight (RKW). There was significantly at differences ($p< 0.05$) between groups in initial body weight**.**

From the obtained results, it could be observed that, the liver of infected rats (G_6) had high significantly differences ($p \leq 0.05$) mean weight values than those of other rats groups as follow (11.30 gm), followed by group 2 then group 5, respectively., on the other hand we found groups No. 3 and 4 had considerable impacts on lowering the relative weight of liver when compared with positive control.

Also, the results indicated that all treated groups had no significantly variations in kidney weight when compared with control. These results agree with those reported by **(Badr, 2012; Eman *et al.*, 2014; Ismail, 2016; Halaby *et al.*, 2018).**

Table (3) showed that the effect of feeding experimental rats with liver disease on Halfa extract and Damsissa extract on internal organs weight (Heart, Pancreas, Spleen) and Relative weights.

While **Relative Heart Weight (RHW**) of rats which fed with the alcoholic extract of Cymbopogon proximus (Halfa) at concentrations of 1 M and 2 M and the infected treated rats in a positive control group, a decrease in cardiac organ weight occurred in (G_3) and (G_4) respectively., compared to that of rats in the positive group. But found that no significant difference ($p<0.05$) in heart weight in all groups when compared with positive control.

Relative Pancreas Weight (RPW) rats which fed with alcoholic extract of (Halfa) at concentrations of 1 ml and 2 ml and the infected treated rats in a positive control group, there was an increase in pancreas organ weight (G_3) (G_4), respectively. On the other hand, the weight of the pancreas in (G_5 and G_6) who feeding with alcoholic extract of (Damsissa) at a concentration of 1 ml 2 ml, there was a significant difference at ($P < 0.05$) when compared with positive control (G_2).From another direction, there were no significant differences ($p< 0.05$) and decrease when compared with negative control.

Relative Spleen Weight (RSW) In Table (4) observed that most increase in (RsW) in group No.(3) whose treated with 1 ml of alcoholic extract of (Halfa) but showed that a decrease in (RsW) in group No. (4) whose treated with 2 ml of alcoholic extract of (Halfa) when compared with a negative control. On the other hand, the weight of the spleen when fed with alcoholic extract of (Damsissa) at a concentration of 1 ml 2 ml, there was a significant difference ($P < 0.05$) comparing with a negative control (G_1).These results are an agreement with **(Badr, 2012; Eman *et al.*, 2014; Ismail, 2016 and Halaby *et al.*, 2018).**

<u>Lipid profile:</u>

The results illustrated in Table (4) showed that the effect of feeding experimental rats with liver disease on Halfa extract and Damsissa alcoholic extract on serum lipid profile (TC- TG and HDL-C),

The levels of serum TC, TG were significantly (p≤ o.o5) increased from 76.86, 74.06 mg/ dl, in negative control rats (G_1) to 99.00, 99.66 mg/dl, respectively, in group No. 3 whose received 1 ml Halfa extract, followed by G_4 whose recorded 91.66, 87.50 mg/ dl respectively, but we found an significantly (p≤ o.o5) decreased in levels of serum TC, TG in groups had treated with Damsissa alcoholic extract as follow G5 (87.33, 74.50 mg/ dl) and (73.00, 77.50 mg/ dl) respectively, when comparing with positive control rats (G_2). On the other side high density lipoprotein cholesterol (HDL-C) the rats were fed on extract at concentrations 1 ml and 2 ml, and its effect on the lipid profile, especially (HDL-C) there were significant differences between the two concentrations used, as well as between them and the positive control rats (G_2). The same effect we found it in other group (G_5 and G_6) treated with (Ambrosia

Maritima) Damsissa alcoholic extract. Similar results were obtained by **(Shepherd, 1989; Lenzen, 2008; Mishra *et al.*, 2010; Gupta *et al.*, 2013; Ismail, 2016**). While not an agreement with **(Rang *et al.*, 2007).**

In Table (5) showed that the effect of feeding rats on and Ambrosia extracts on serum lipid profile (LDL-C, VLDL-C, and CRI), Lipid profile Low density of lipoprotein cholesterol [LDL-C] in rats were fed on ethanolic extract was used with concentrations of 1 ml and 2 ml and its effects on the lipid profile, especially (LDL-C) were studied. There were significant differences ($p< 0.05$) between two concentrations, as well as between them and the infected rats (G_3) (G_4) (G_2), respectively. Also there were significant difference ($p< 0.05$) with an increase between the same groups and the negative control group (G_1).

On the other hand, rats treated with Damsissa ethanolic extract was used with concentrations of 1 ml and 2 ml showed that an significant differences ($p< 0.05$) between the two concentrations used, as well as between them and with induced rats (G_5) (G_6) (G_2), respectively. Also there were significant difference ($p< 0.05$) also an increase between the same groups and the negative control group (G_1).

Data in the same Table showed that very low Density of lipoprotein cholesterol (VLDL-C) in G_3, G_4 and G_6 was a broach to the value of negative control. On the other hand, results showed that Coronary risk index (CRI) no significant differences ($p< 0.05$) between groups (G_3, G_4, G_5 and G_6), but there was a significant differences ($p< 0.05$) between them and both negative and positive control. Similar results were obtained by (**Shepherd, 1989; Lenzen 2008; Mishra *et al.*, 2010; Ismail, 2016).**

Kidney functions:

The effects of administration of different on serum urea, uric acid and creatinine of rats are given in (Table 6). Data revealed that there were significant differences ($p<0.05$) between the groups under study, firstly serum urea increased from 42.50 in negative group to 47.50 mg/dl in G_3 and G_5 followed by G_4 (46.50 mg/dl) then we found G_6 recorded the lowest value (43.50 mg/dl) when comparing with negative control.

Data in Table (6) showed that serum uric acid had a small increase in most groups under studying when compared with negative control but that found the best value in serum uric acid appeared in rats received 1 ml damsissa extract (G_5).

Also, data in Table (6) showed that little significant ($p \leq 0.05$) difference in serum creatinine for all groups fed on either extracts compared with control positive (G_2). The mean values of serum creatinine levels were ranged between, 0.60 to 0.72 mg/dl; respectively, for rats fed on different experimental extracts. However G_5 and G_6 based on 1 ml and 2 ml Ambrosia extract had the ability to improve renal functions in rats by reducing serum creatinine. These obtained data are an agreement with those reported by **(Adelman *et al.*, (1981); Wedeen and Qian, (1991); Wang *et al.*, (1994); Davis and Berndt, (1994); Jouad *et al.*, (2002)).** and not agreement with those reported by **(Badr, 2012)**.

Liver functions and Serum glucose:

In Table (7) showed the effect of nutrition of and Halfa and Damsissa extracts on blood. liver functions (Alanine aminotransferase (ALT)), (aspartate aminotiansferase (AST)) and serum glucose (mg\dl). Overall, there were significant differences between the groups under study ($p<0.05$).

Data revealed that there were significant differences ($p<0.05$) between the groups under study, firstly ALT decreased from 36.50 in negative group to 33.50, 31.50 mg/dl in G_3 and G_5, respectively, followed by G_4 (30.66 mg/dl) also found G_6 recorded the lowest value (28.50 mg/dl) which compared with negative control.

Also, data showed that serum aspartate aminotiansferase (AST)) had an small decrease in most group under studying when compared with negative control but we found the best value in serum aspartate aminotiansferase (AST)) appeared in rats received 2 ml damsisa extract (G_6).

In Table (7) showed that little significant ($p \leq 0.05$) difference in serum glucose for all groups fed on either extracts compared with control positive (G_2). The mean values of serum glucose levels were ranged between, 110.3 to 119.0 mg/dl; respectively, for rats fed on different experimental extracts. However G_3 and G_4 based on 1 ml and 2 ml Ambrosia martimia (damsissa) extract had the ability to improve pancreases functions in rats by reducing serum glucose. Data are an agreement with those reported by **(Ahmed., (2003).; Ibrahem et al., (2004b).; Salih., (2013).; Hossain., (2013).; Prabu and Natarajan., (2013)).** and disagree with (**Singhal et al., 2014).**

Part two:

Changes in body weight

Table (8) illustrated that the average body weight (BW), (initial weight, final weight) of experimental rats with kidney disease treated with water of Halfa and Damsisa was significantly ($p< 0.05$) lower than that of the normal control (G1), Drastic reduction was obtained in the BW of experimental rats (G_{11}) (319.66 gm), the final weight of the experimental rats (G_{10} and G_{11}) treated with water of Damsissa extract, was significantly ($p< 0.05$) lower than the normal control (G_1). On the other hand (G_9) experimental rats treated with 4 ml water of Halfa extract improved their body weight loss when compared with the positive control (G_7).

Body weight gain (Bwg) of rats on (G_9) recorded (67.29) was slightly lower than (G_1)whose recorded (88.63), this indicated that G_9 experimental rats treated with 4 ml of water Half extract was slightly less efficient than negative control (-) in promoting growth. These results are an agreement with those obtained by **(Zhou *et al.*, (2008); Josef *et al.*, (2010)**; **Hofmann *et al.*, (2010)).**

Changes in organs weight

The results in Table (9) showed that effect of feeding experimental rats with kidney disease on Halfa extract and Damsissa extract, relative liver weight (RLW), and relative kidney weight (RKW). There was significantly ($p< 0.05$) differences between groups in initial body weight.

From these results, it could be observed that, the liver of infected rats (G_9) had high significantly ($p \leq 0.05$) mean weight values than those of other rats groups as follow (10.13 gm), followed by (G_{10}) and (G_{11}), respectively. On the other hand found that (G_8) had considerable impacts on lowering the relative weight of liver when compared with positive control.

Also, the results indicated that all treated groups had no significantly variations in kidney weight when compared with control. These results are an agreement with those obtained by **(Zhou et al., (2008); Josef et al., (2010)**; **Hofmann et al., (2010))**

In Table (10) showed that effect of feeding experimental rats with kidney disease on Halfa extract and Damsissa extract on internal organs weight (Heart, Pancreas, Spleen) and Relative weights.

Relative Heart Weight (RHW), when rats were feeding with the water extract of (halfa) at concentrations of 2 ml (G_8) and 4 ml (G_9)and the infected treated rats in a positive control group, a decrease in cardiac organ weight occurred in (G_{10}), compared to that of rats in the positive group. But we found that no significant difference ($p<0.05$) in heart weight in all groups when compared with positive control.

Relative Pancreas Weight (RPW) the weight of the pancreas in (G_{11}) whose feeding with water extract of (Damsissa) at a concentration of 4 ml (G_{11}), there are a significant difference ($P < 0.05$) when compared with negative control (G_1). But, when rats were fed with water extract of (Halfa) at concentrations of 4 ml there are no significant difference ($p<0.05$) in pancreas organ weight comparing with a negative control (G_1).

Relative Spleen Weight (RSW) results in Table (10) observed that an most increase in (RsW) in group No. (G_{11}) whose treated with 4 ml of water extract of (Damsissa) but we showed an a decrease in (RsW) in (G_{10}) whose treated with 2 ml of water extract of (Damsissa) when compared with a negative control. On the other hand, the weight of the spleen when fed with water extract of Halfa at a concentration of 2 ml and 4 ml, there are a significant difference ($P < 0.05$) comparing with a negative control (G_1). These results are an agreement with those obtained by **(Zhou *et al.*, (2008); (Josef *et al.*, (2010)**; **Hofmann *et al.*, (2010)).**

Lipid profile:

The results illustrated in Table (11) showed that effect of feeding experimental rats with kidney disease on Halfa and Damsissa water extract on serum lipid profile (TC- TG and HDL-C),

The levels of serum TC, TG were significantly ($p\leq$ o.o5) increased from 76.86, 74.06 mg/ dl, in negative control rats (G_1) to 87.66, 73.93 mg/dl, respectively, in (G_{10}) who's received 2 ml Damsissa extract and group No. 9 whose received 4 ml halfa extract, followed by G_8 whose recorded 83.00, mg/dl, 72.66 mg/dl, respectively.

On the other side high density lipoprotein cholesterol (HDL-C) the rats were fed on halfa extract at concentrations 2 ml and 4 ml, and its effect on the lipid profile, especially (HDL-C) there were significant differences between the two concentrations used, as well as between them and the positive control rats (G_7). The same effect we found it in other group (G_{10} and G_{11}) treated with Damsissa water extract. Similar results were obtained by **Jadeja et al. (2010); Barakat *et al.*, (2012); Helal *et al.*, (2014)).**

In Table (12) showed that effect of feeding rats on Halfa and Demsissa extracts on serum lipid profile (LDL-C, VLDL-C, and CRI), Lipid profile Low density of lipoprotein cholesterol [LDL-C] in rats were fed on Halfa extract was used with concentrations of 2 ml and 4 ml and its effects on the lipid profile, especially (LDL-C) was studied. There are significant differences ($p< 0.05$) between two concentrations used, as well as between them and the infected rats (G_8)

(G_9) and (G_7), respectively. Also there are significant difference ($p< 0.05$) with an increase between the same groups and the negative control group (G_1).

On the other hand, rats treated with (Damsissa) extract was used with concentrations of 2 ml and 4 ml showed that a significant differences ($p< 0.05$) between the two concentrations, as well as between them and the infected rats (G_{10}) (G_{11}) and (G_7), respectively. Also there are significant difference ($p< 0.05$) with an increase between the same groups and the negative control group (G_1).

Data in the same Table (12) showed that very low density of lipoprotein cholesterol (VLDL-C) in G_8 was a broach to the value of negative control, but G_9 had the highest value in VLDL (30.30 mg/dl). On the other hand the obtained results showed that Coronary risk index (CRI) no significant differences ($p< 0.05$) between groups (G_8, and G_{10}) when compared with negative control but there are a significant differences ($p< 0.05$) between them and positive control. These results agree with those reported by (**Jadeja *et al.*, (2010); Barakat *et al.*, (2012); Helal *et al.*, (2014)).**

Kidney functions:

The effects of administration of different on serum urea, uric acid and creatinine of rats are given in (Table 13). Data revealed that there are significant differences ($p<0.05$) between the groups, firstly serum urea increased from 42.50 in negative group to 53.50 mg/dl in G_9 followed by G_{11} (47.50 mg/dl) then found that G_{10} recorded the lowest value (34.50 mg/dl) when comparing with negative the control.

Secondary, data showed that serum uric acid had a little significant ($p \leq 0.05$) difference in groups when compared with negative control but found that the best value in serum uric acid appeared in rats received 2 ml Damsissa extract (G_{10}).

Data in Table (13) showed that significantly difference at ($p \leq 0.05$) in serum creatinine for all groups fed on either extracts compared with control positive (G_7). The mean values of serum creatinine levels are ranged between, 0.543 to 0.740 mg/dl; respectively, when rats fed on different experimental extracts. However G_8, G_9 and G_{10} based on 2 ml, 4 ml and 2 ml of (Halfa) and (Damsissa) extract had the ability to improve renal functions in rats by reducing serum creatinine. These data are an agreement with **(Thamilselvan and Menon, (2005); Jihong *et al.*, (2007); Touhami *et al.*, (2007); Bahuguna *et al.*, (2009); Al-Attar, (2010); Lakshmi and Sudhakar, (2010); Barakat *et al.*, (2012); Badr, (2012)).**

Liver functions and Serum glucose:

In Table (14) showed that effect of nutrition of Halfa and Damsissa extracts on blood. liver functions (Alanine aminotransferase (ALT)), (aspartate aminotiansferase (AST)) and Serum glucose (mg\dl). Overall, there are significant differences between the groups at ($p<0.05$).

Data revealed that there are significant differences ($p<0.05$) between the groups, firstly ALT decreased from 36.50 in negative group to 32.50, 28.50 mg/dl in G_{10} and G_{11}, respectively, followed by G_8 (28.00 mg/dl) then we found G_9 recorded the lowest value (24.50

mg/dl) when comparing with negative control.

Also, data showed that serum aspartate aminotiansferase (AST)) had an decrease in most group when compared with negative control but found that the best value in serum aspartate aminotiansferase (AST)) appeared in rats received 4 ml halfa extract (G_9).

In Table (14) showed that an significant difference at ($p \leq 0.05$) in serum glucose for all groups fed on either extracts compared with control positive (G_7). The mean values of serum glucose levels were ranged between, 100.53 to 115.93 mg/dl; respectively, for rats fed on different experimental extracts. However G_9 based on 4 ml halfa extract had the ability to improve pancreases functions in rats by reducing serum glucose.

These data are an agreement with those reported by **(Jouad *et al.*, (2002); Al Sayeda *et al.*, (2002); Mansour *et al.*, (2002); Helal *et al.*, (2014)** and **Barakat *et al.*, (2012)),** while these data disagree with **(Eskander and Won Jun., (1995); Sheweita *et al.*, (2002); Badr, (2012)).**

Conclusion:

In this study found that improve in function of liver, kidney, heart, pancreases and spleen at 1ml and 2ml extracts of halfa alchohol extract, on the other hand at 2 ml and 4 ml extracts of damsissa water extract

Table (1): Body weight (initial weight, final weight), and body weight gain (BWG)of experimental rats with liver disease treated with alcoholic of Half and Damsissa .gm

Rats groups \ Parameters		Ethanolic extract		
		Initial weight	Final weight	BWG
Control	(Cont. -) (G_1)	205.00^{a}	386.66^{a}	88.63^{a}
	(Cont. +) (G_2)	203.60^{a}	338.00^{c}	66.04^{c}
Halfa	1ml (G_3)	200.83^{a}	357.00^{b}	72.37^{b}
	2ml (G_4)	203.63^{a}	359.33^{b}	76.51^{b}
Damsissa	1ml (G_5)	200.53^{a}	297.00^{d}	49.38^{d}
	2ml (G_6)	200.03^{a}	333.66^{c}	64.42^{c}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$). BWG**.** Body weight gain

Table (2): Internal organs weight (liver, kidney) and Relative Liver weight, Relative kidney weight of experimental rats with liver disease treated with alcoholic of Halfa and Damsissa.

Rats groups \ Parameters		Ethanolic extract			
		Liver/gm	RLW%	Kidney/gm	RKW%
Control	(Cont. -) (G_1)	7.79^{d}	2.01^{c}	3.21^{a}	0.83^{abc}
	(Cont. +) (G_2)	10.80^{ab}	3.19^{a}	3.16^{a}	0.93^{a}
Halfa	1ml (G_3)	9.83^{bc}	2.75^{b}	2.84^{ab}	0.79^{bcd}
	2ml (G_4)	9.18^{c}	2.75^{b}	2.57^{b}	0.71^{d}
Damsissa	1ml (G_5)	10.41^{ab}	3.50^{a}	2.65^{b}	0.89^{ab}
	2ml (G_6)	11.30^{a}	3.38^{a}	2.54^{b}	0.76^{dc}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (3): Internal organs weight (Heart, Pancreas, spleen) and Relative weight of experimental rats with liver disease treated with alcoholic of Half and Damsissa

Rats groups \ Parameters		Ethanolic extract					
		Heart/ gm	RHW %	Pancre as/gm	RPW %	Spleen /gm	RSW %
Control	(Cont. -) (G_1)	1.22^{a}	0.32^{a}	0.42^{d}	0.10^{c}	1.08^{ab}	0.27^{ab}
	(Cont. +) (G_2)	1.12^{a}	0.33^{a}	0.68^{b}	0.20^{a}	0.87^{b}	0.25^{b}
Halfa	1ml (G_3)	1.12^{a}	0.31^{a}	0.76^{a}	0.21^{a}	1.23^{a}	0.43^{ab}
	2ml (G_4)	0.96^{b}	0.27^{b}	0.53^{c}	0.14^{b}	1.08^{ab}	0.29^{ab}
Damsissa	1ml (G_5)	0.93^{b}	0.31^{a}	0.44^{d}	0.15^{b}	1.07^{ab}	0.36^{a}
	2ml (G_6)	1.00^{b}	0.29^{a}	0.39^{d}	0.11^{c}	1.13^{ab}	0.33^{ab}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (4): lipid profile (Total cholesterol (TC), Triglycerides (TG) and High Density lipoprotein Cholesterol (HDL-C) of experimental rats with liver disease treated with alcoholic of Half and Damsissa (mg\ dl)

Rats groups \ Parameters		Ethanolic extract		
		TC	TG	HDLC
Control	(Cont. -) (G_1)	76.86^{d}	74.06^{d}	43.83^{a}
	(Cont. +) (G_2)	95.06^{ab}	161.06^{a}	24.20^{e}
Halfa	1ml (G_3)	99.00^{a}	99.66^{b}	38.60^{b}
	2ml (G_4)	91.66^{bc}	87.50^{c}	34.86^{c}
Damsissa	1ml (G_5)	87.33^{c}	74.50^{d}	31.16^{d}
	2ml (G_6)	73.00^{d}	77.50^{d}	32.13^{d}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0\ .05$).

Table (5): lipid profile (Low density of lipoprotein cholesterol (LDL-C)، very low density of lipoprotein cholesterol (VLDL-C), and Coronary risk index (CRI) of experimental rats induced liver disease treated with Ethanolic extract of Halfa and Damsissa (mg\ dl)

Rats groups \ Parameters		Ethanolic extract		
		LDLC	VLDLC	CRI
Control	(Cont. -) (G_1)	14.03^{c}	19.00^{b}	1.68^{c}
	(Cont. +) (G_2)	51.00^{a}	32.33^{a}	6.65^{a}
Halfa	1ml (G_3)	41.46^{b}	18.93^{b}	2.56^{b}
	2ml (G_4)	41.30^{b}	15.50^{c}	2.50^{b}
Damsissa	1ml (G_5)	48.73^{ab}	s8.900^{d}	2.38^{b}
	2ml (G_6)	47.26^{ab}	15.10^{c}	2.41^{b}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0\ .05$).

Table (6): kidney functions (Urea, Uric acid and Creatinine) of experimental rats with liver disease treated with alcoholic of Halfa and Damsissa(mg/dl)

Rats groups	Parameters	Ethanolic extract		
		Urea	**uric acid**	**Creatinine**
Control	**(Cont. -) (G_1)**	42.50^c	20.25^c	0.68^b
	(Cont. +) (G_2)	52.50^a	26.16^a	1.66^a
Halfa	**1ml (G_3)**	47.50^b	22.20^b	0.72^b
	2ml (G_4)	46.50^b	21.70^b	0.67^b
Damsissa	**1ml (G_5)**	47.50^b	19.80^c	0.60^c
	2ml (G_6)	43.50^c	21.73^b	0.66^b

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different (p≤ 0 .05).

Table (7): liver functions (Alanine aminotransferase (ALT))، Aspartate aminotiansferase (AST)) and Serum glucose (mg\dl) of experimental rats with liver disease treated with alcoholic of Halfa and Damsissa(mg\dl)

Rats groups	Parameters	Ethanolic extract		
		ALT	**AST**	**Glucose**
Control	**(Cont. -) (G_1)**	36.50^b	22.50^b	94.00^d
	(Cont. +) (G_2)	46.00^a	31.00^a	158.6^a
Halfa	**1ml (G_3)**	33.50^c	20.00^c	111.3^c
	2ml (G_4)	30.66^{de}	19.00^{cd}	110.3^c
Damsissa	**1ml (G_5)**	31.50^{cd}	17.00^{de}	118.6^b
	2ml (G_6)	28.50^e	16.23^e	119.0^b

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different (p≤ 0 .05

Table (8): Body weight (Initial weight, Final weight), and Body weight gain (BWG) of experimental rats with kidney disease treated with water of Halfa and Damsissa.

Rats groups \ Parameters		Water extract		
		Initial weight/gm	Final weight/gm	BWG%
Control	(Cont. -)(G_1)	205.00^a	386.66^a	88.63^a
	(Cont. +)(G_7)	203.5^a	305.00^d	49.95^d
Halfa	2 ml (G_8)	203.53^a	332.66^{bc}	63.44^{bc}
	4 ml (G_9)	203.43^a	340.33^b	67.29^b
Damsissa	2 ml (G_{10})	205.66^a	332.33^{bc}	61.73^{bc}
	4 ml (G_{11})	203.00^a	319.66^{cd}	57.58^{cd}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different (p≤ 0 .05). BWG. Body weight gain

Table (9): Internal organs weight (liver, kidney) and Relative Liver weight, Relative kidney weight of experimental rats with kidney disease treated with water of Halfa and Damsissa

Rats groups \ Parameters		Water extract			
		Liver /gm	RLW%	Kidney/gm	RKW%
Control	(Cont. -)(G_1)	7.79^b	2.01^c	3.21^a	0.83^a
	(Cont. +)(G_7)	10.28^a	3.37^a	1.46^c	0.47^b
Halfa	2 ml (G_8)	8.60^{ab}	2.58^{bc}	2.47^b	0.74^a
	4 ml (G_9)	10.13^a	2.98^{ab}	2.82^{ab}	0.83^a
Damsissa	2 ml (G_{10})	9.40^{ab}	2.83^{ab}	2.61^{ab}	0.78^a
	4 ml (G_{11})	9.40^{ab}	3.16^{ab}	2.63^{ab}	0.82^a

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different (p≤ 0 .05).

Table (10): Internal organs weight (Heart, Pancreas, Spleen) and Relative weight of experimental rats with kidney disease treated with water of Halfa and Damsisa

Rats groups \ Parameters		Water extract					
		Heart/gm	RHW %	Pancreas /gm	RPW%	Spleen/gm	RSW %
Control	(Cont. -)(G_1)	1.22^a	0.31^{ab}	0.42^b	0.109^{cd}	1.080^b	0.278^b
	(Cont. +)(G_7)	1.00^b	0.32^{ab}	0.31^c	0.101^{de}	0.953^b	0.312^b
Halfa	2 ml (G_8)	0.92^b	0.27^{ab}	0.23^c	0.070^e	1.213^{ab}	0.364^{ab}
	4 ml (G_9)	0.92^b	0.27^{ab}	0.49^b	0.145^b	1.216^{ab}	0.358^{ab}
Damsissa	2 ml (G_{10})	0.89^b	0.26^b	0.46^b	0.139^{bc}	1.093^b	0.330^b
	4 ml (G_{11})	1.090^{ab}	0.34^a	0.63^a	0.97^a	1.543^a	0.482^a

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (11): lipid profile (Total cholesterol (TC), Triglycerides (TG) and High density lipoprotein cholesterol (HDL-C) of experimental rats with kidney disease treated with water of Halfa and Damsissa

Rats groups \ Parameters		Water extract		
		TC(mg\dl)	TG(mg\dl)	HDLC(mg\dl)
Control	(Cont. -)(G_1)	76.86^b	74.06^b	43.83^a
	(Cont. +)(G_7)	93.13^a	96.83^a	14.40^e
Halfa	2 ml (G_8)	83.00^{ab}	72.66^b	27.46^d
	4 ml (G_9)	80.66^b	73.93^b	30.13^c
Damsissa	2 ml (G_{10})	87.66^{ab}	64.33^c	30.40^c
	4 ml (G_{11})	62.66^c	71.16^b	32.13^b

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (12): lipid profile (Low density of lipoprotein Cholesterol (LDL-C)، Very low Density of lipoprotein Cholesterol (VLDL-C), and Coronary risk index (CRI) of experimental rats with kidney disease treated with water of Halfa and Damsissa(mg\dl)

Rats groups \ Parameters		Water extract		
		LDL-C	VLDL-C	CRI
Control	(Cont. -)(G_1)	14.03^{e}	19.00^{c}	1.68^{d}
	(Cont. +)(G_7)	62.03^{a}	16.70^{d}	6.73^{a}
Halfa	2 ml (G_8)	34.33^{c}	15.20^{d}	2.64^{d}
	4 ml (G_9)	20.23^{d}	30.30^{a}	3.78^{c}
Damsissa	2 ml (G_{10})	55.00^{b}	12.20^{e}	2.12^{d}
	4 ml (G_{11})	20.06^{d}	28.50^{b}	5.31^{b}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (13): kidney functions (Urea, Uric acid and Creatinine) of experimental rats with kidney disease treated with water of Halfa and Damsissa(mg\dl)

Rats groups \ Parameters		Water extract		
		Urea	Uric acid	Creatinine
Control	(Cont. -) (G_1)	42.50^{d}	20.25^{d}	0.680^{b}
	(Cont. +) (G_7)	50.00^{b}	28.03^{a}	1.133^{a}
Halfa	2 ml (G_8)	44.00^{d}	20.58^{d}	0.563^{c}
	4 ml (G_9)	53.50^{a}	24.100^{b}	0.543^{c}
Damsissa	2 ml (G_{10})	34.50^{e}	16.10^{e}	0.543^{c}
	4 ml (G_{11})	47.50^{c}	22.13^{c}	0.740^{b}

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different ($p \leq 0.05$).

Table (14): liver functions (Alanine aminotransferase (ALT))، Aspartate aminotiansferase (AST)) and Serum glucose (mg\dl) of experimental rats with kidney disease treated with water of Halfa and Damsissa

Rats groups \ Parameters		Water extract		
		ALT(mg\dl)	AST(mg\dl)	Glucose(mg\dl)
Control	(Cont. -) (G_1)	36.50^a	22.50^a	94.00^e
	(Cont. +) (G_7)	34.33^{ab}	23.00^a	156.00^a
Halfa	2 ml (G_8)	28.00^c	17.50^{bc}	112.66^b
	4 ml (G_9)	24.50^d	16.33^c	100.53^d
Damsissa	2 ml (G_{10})	32.50^b	18.33^b	115.93^b
	4 ml (G_{11})	28.50^c	18.23^b	106.00^c

Mean (n=8) ± Standard Division (SD), Mean (n=8) ± SD, means with the similar letters are in the same column are not significantly by different (p≤ 0 .05).

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الملخص العربي

تأثير التغذيه بأعشاب الحلف بر والدمسيسه للفئران المصابه بمرضى الكبد والكلى

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تم إجراء هذا العمل لمعرفة تأثير التغذية على مستخلصات الحلفا (Cymbopogen Proximus) و الدمسيسه (Ambrosia Maritima)على الفئران التجارب المصابة بأمراض الكلى والكبد. ثمانية وثمانين من ذكور الجرذان البيضاء بمتوسط وزن ١٩٥ + ٥ جم. قسمت الحيوانات إلى ١١ مجموعة متشابهة المجموعة ١ (مجموعة تحكم السالب غير المعالجة) ، المجموعة ٢ ، (كبد تحكم إيجابي ، جرذان مصابة) ، المجموعة ٣ (جرذان مصابة بالكبد تتغذى بشكل طبيعي وتتلقى عن طريق الفم (١ مل) من مستخلص الحلفا) ، المجموعة ٤ (فئران مصابة بالكبد. تلقي نظام غذائي طبيعي وتلقي عن طريق الفم (٢ مل) من مستخلص الحلفا) ، المجموعة ٥ (جرذان مصابة بالكبد تتلقى نظامًا غذائيًا طبيعيًا وتتلقى عن طريق الفم (١ مل) من مستخلص دمسيسة)، المجموعة ٦ (فئران مصابة بالكبد تتلقى نظامًا غذائيًا طبيعيًا وتتلقى عن طريق الفم (٢ مل) من خلاصة دمسيسة) ، المجموعة ٧ (كلوي تحكم إيجابي ، جرذان مصابة) ، المجموعة ٨ (فئران مصابة بالكلى تتلقى غذاء طبيعي وتتلقى عن طريق الفم (٢ مل) من مستخلص الحلفا) ، المجموعة ٩ (فئران مصابة بالكلى تتلقى غذاء طبيعي وتتلقى عن طريق الفم (٤ مل) من مستخلص الحلفا) ، المجموعة ١٠ (فئران مصابة بالكلى تتلقى غذاء طبيعي وتتناول عن طريق الفم (٢ مل) من خلاصة دمسيسةا) ، والمجموعة ١١ (فئران مصابة بالكلى تتلقى غذاء طبيعي وتتلقى عن طريق الفم (٤ مل) من خلاصة دمسيسة). خلال فترة التجربة بأكملها ، تم جمع عينات الدم وتحليل المصل من أجل تركيز ، الكوليسترول ، الدهون الثلاثية ، HDL، LDL، VLDL، اليوريا ، حمض البوليك ، الكرياتينين ، ALT، ASTوالجلوكوز. في نهاية التجربة تم التضحيه بالفئران للحصول على الكلى والكبد والقلب والبنكرياس والطحال. أشارت النتائج إلى أن علاج الجرذان بمستخلصي الكحول والماء يحسن وظائف الكبد والكلى والقلب والبنكرياس والطحال عند ١ مل و ٢ مل من خلاصة الكحول ، ومن ناحية أخرى ٢ مل و ٤ مل من خلاصة دامسيسا. مستخلص الماء.