



Libyan International Medical University



Faculty of Pharmacy

Second Year

# **A human study on the effect of Alhagi Maurorum (camel thorn) on patients suffering from hepatitis B virus**

Presented By:

Salah Abdulsalam 3375

Alkhansaa Alferjani 2641

Ritaj Abdalnaser 3569

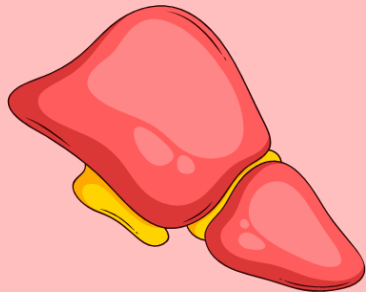
Tala Salwan 3588

Alaa Alomami 3122

Obaida Mohammed 3413

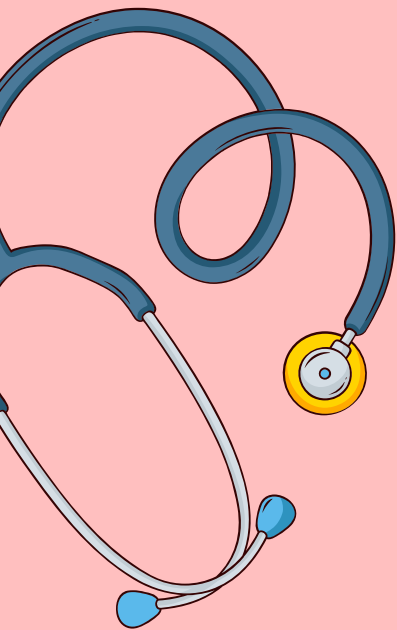
Sajida Kamal 3412

Academic Year  
2022-2023



01

# INTRODUCTION

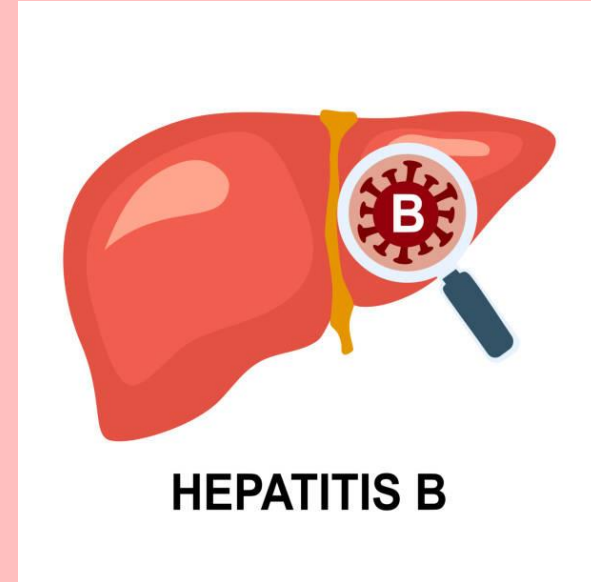




# INTRODUCTION

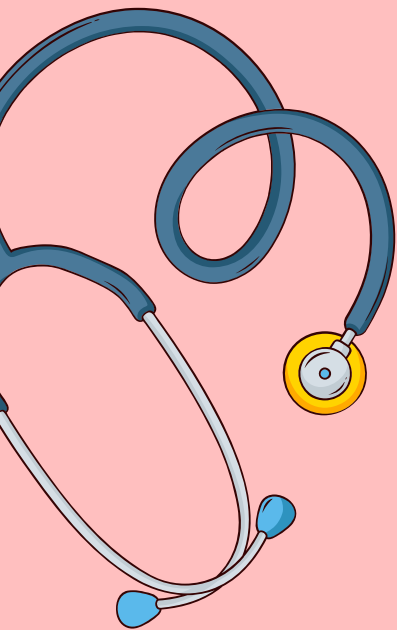
From this study, we may conclude that the camel thorn is safe and showed activity against viral hepatitis B, however, further investigations are needed by increasing the number of patients and using higher doses of plant extract to explore its mechanism of action.

Finally, the mechanism of camel thorn may be related either to its antiviral effect or to the stimulation of either endogenous interferon or the immune system.



02

# Materials and methods





# Materials and methods



Following the pharmacological and toxicological evaluation of camel thorns in labs using test animals.

The dose chosen for this research was 2.6 g administered three times per day.

Compared to the LD50 in mice, this dosage was incredibly low.

13 patients were randomly selected Patients ranged in age from 20 to 50 years, with a masculine to female ratio of 5 to 8.

Patients were not alcoholics and had no prior evidence of liver cirrhosis or other co-morbid illnesses (some patients had diabetes mellitus).

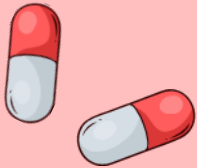


# ✦ **Materials and methods** ✦ ✦

Camel thorn powder (2.6 g soaked in boiling water for 10 minutes). A COBAS analyzer (Roche Molecular Systems Inc., Branchburg, NJ) was used to quantify the viral load using the polymerase chain reaction before treatment and three and six months into the experiment.

The prothrombin time (PT), and the international normalized ratio (INR) was calculated.

Using an immunoassay instrument, creatinine, and blood glucose, thyroid function was assessed.



**03**

**Results**





# Results



**Table 1**

- As you can see in this table , no statistically significant decrease in patients' hepatitis B virus load was observed after three months of treatment.
- However, the level of virus load in the same patients was significantly decreased after six months of treatment with camel thorn extract ( $p < 0.05$ ).
- Table 1: Effect of camel thorn extract on the viral load of HBV suffering patients at different time intervals using real-time PCR

Treatment protocol	HBV Load (IU per ml)
Pre-treatment	1689 ± 289
Three months after the beginning daily treatment	558 ± 160
Six months after the beginning of daily treatment	271 ± 026*

\*significantly different from pretreatment and three months after the beginning of treatment ( $p < 0.05$ )

Data are mean ± SEM.



# Results

## Table 2

- According to Table 2, the levels of HB virus pre- (before administration of Alhagi Maurorum) and post-treatment of daily administration of Alhagi Maurorum were  $12.12 \pm 0.78$  and  $12.17 \pm 0.93$  (g/l), respectively.
- The levels of WBC pre- and post- treatment were  $7.83 \pm 0.35$  and  $7.68 \pm 0.74$  ( $10^9/l$ ).
- The numbers of platelets in pre- and post-treatment patients were  $268 \pm 24.71$  and  $257.8 \pm 18.96$  ( $10^9/l$ ), respectively.
- The pre- and post-treatment PTs (in seconds) were  $12.17 \pm 3.95$  and  $9.67 \pm 3.06$ ; the pre- and post-treatment INR readings were  $1.18 \pm 0.40$  and  $0.8 \pm 0.25$ .
- Thus, by using the Student t-test, no significant statistical changes were observed on the previously mentioned parameters.

# Results

- Table 2:** Effect of Alhagi Maurorum on blood picture, PT and INR in HVB suffering patients

Treatment protocol	Hemoglobin (g / l)	White blood cells ( $10^9 / l$ )	Platelets ( $10^9 / l$ )	Prothrombin time (secs)	International normalized ratio
Pre-treatment	$12.12 \pm 0.78$	$7.83 \pm 0.35$	$268 \pm 24.71$	$12.17 \pm 3.95$	$1.18 \pm 0.40$
Post-treatment	$12.17 \pm 0.93$	$7.68 \pm 0.74$	$257.8 \pm 18.96$	$9.67 \pm 3.06$	$0.80 \pm 0.25$
P value	0.88	0.86	0.66	0.076	0.08

Data are mean  $\pm$  SEM, Pre  $\rightarrow$  Before administration of CTE, Post  $\rightarrow$  After 3 months of daily administration of CTE.

# Results

## Table 3

- Results in Table 3 shows blood urea levels (mg/dl), pre- and post-treatment, were  $19.5 \pm 4.10$  and  $24.5 \pm 2.67$ .
- The levels of creatinine (mg/dl) pre- and post- treatment were found to be  $0.78 \pm 0.07$  and  $0.6 \pm 0.09$  respectively.
- The pre- and post-treatment plasma glucose levels were  $86.0 \pm 3.36$  and  $88.8 \pm 2.26$ , respectively.
- All these data indicate no significant statistical differences between the groups.

# Results

- **Table 3: Effect of Alhagi Maurorum on some renal parameters and on blood glucose levels in HBV-infected patients**

Treatment protocol	Urea (mg/dl)	Creatinine (mg/dl)	Glucose (mg/dl)
Pre-treatment	19.5 ± 4.10	0.78 ± 0.07	86.0 ± 3.36
Post-treatment with CTE	24.5 ± 2.67	0.60 ± 0.09	88.8 ± 2.26
P value	0.06	0.21	0.53

Data are mean ± SEM, Pre → before administration of CTE, Post → after 3 months of daily administration of CTE

# Results

- Alhagi Maurorum treatment had no significant effect on bilirubin, ALT, AST, ALKP, or albumin concentrations in pre- and post-treatment patients.

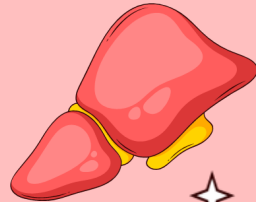
**Table 4:** Effect of treatment with CTE on some liver parameters and albumin in HBV-infected patients

	<b>Bilirubin (mg/dl)</b>	<b>ALT (U/l)</b>	<b>AST (U/l)</b>	<b>ALKP (U/l)</b>	<b>Albumin (g/l)</b>
<b>Pre-treatment</b>	0.56 ± 0.091	22.67 ± 4.69	25.33 ± 1.78	84.17 ± 6.67	4.33 ± 0.19
<b>Post-treatment</b>	0.45 ± 0.022	20.83 ± 2.94	19.67 ± 2.8	91.67 ± 5.96	4.25 ± 0.13
<b>P value</b>	0.27	0.40	0.11	0.06	0.36

Data mean ± SEM, Pre → Before administration of CTE, Post → After 3 months of daily administration of CTE.

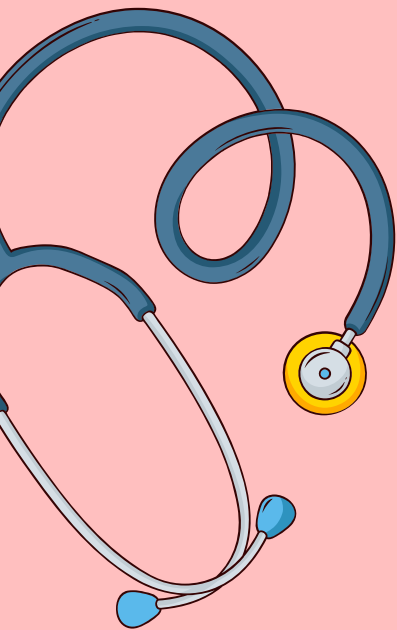
# Results

- No significant difference between pre- and post-treatment with Alhagi Maurorum; cholesterol, TG, HDL, and LDL levels were unchanged.
- No significant difference was observed in thyroid function between pre- and post-treatment with Alhagi Maurorum, with T3 levels 1.213 0.092 and T4 94.78 4.43 and 78.77 15.88.



**04**

# Discussion



# Discussion

- Hepatitis B virus infection is a major global health problem.
- An estimated 240 - 280 million people are chronic hepatitis B (CHB).
- One million people die every year from CHB-related disease. CHB causes almost 40.0% of cases of hepatocellular carcinoma.
- Dramatic improvements in the efficacy of the treatment of CHB were made possible by the availability of highly potent direct antiviral agents.
- Cure cannot be achieved in most cases because of the peculiar features of this virus.
- The HBV genome is able to integrate into the host genome.
- The inability to arrest this complex replicative machinery leads to the persistence of viral antigen production, which represents the most effective tool for viral control.



# ✧ Discussion ✧

- There is no evidence that antiviral treatment is effective for acute hepatitis B.
- The hepatitis B vaccine, with a 95.0% efficacy rate, is the preventing HBV infection and the consequences of chronic infection, such as cirrhosis, liver cancer, and death.
- Chronic hepatitis B is defined as the persistence of the hepatitis B surface antigen for more than six months.
- Individuals with CHB are at risk of hepatocellular carcinoma and cirrhosis, but morbidity and mortality are reduced with adequate treatment.
- Most cases, treatment must continue for life develop liver cancer, especially if their livers are cirrhotic.

# ✧ Discussion ✧

- Researchers have begun to investigate the potential role of herbs in the treatment of viral infections.
- The effect of CTE extract on HBV was studied, and it was discovered that the extract reduced elevated liver enzymes and viral load.
- This could be due to the plant's ability to stimulate endogenous interferon production in addition to its antioxidant and detoxifying effects.
- Biochemical parameters our data showed that the blood count did not significantly change before or after treatment with CTE. The present findings also indicated that the PT and IR pre- and post-treatment did not show any statistical difference.

# ✧ Discussion ✧

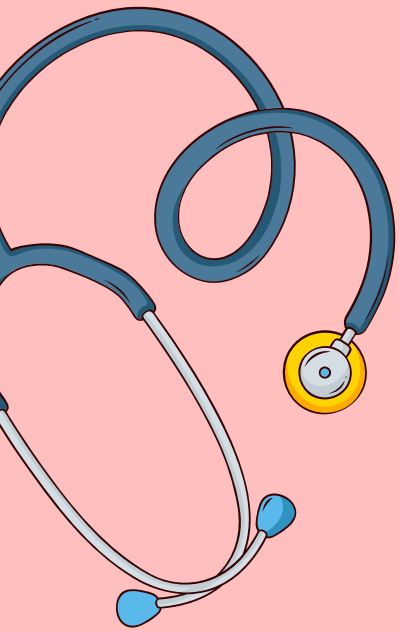
- **Chronic HBV has been linked to renal disease for a decade, and approximately 02 - 15% of patients on hemodialysis have HBV.**
- **The present study showed that the level of urea and creatinine did not statistically alter this.**
- **The liver plays an important role in thyroid hormone metabolism, specifically in its conjugation, excretion, and mono-deiodination, so liver disease can affect thyroid hormone metabolism.**
- **The current study indicated that the tested herb did not significantly change thyroid function.**
- **Patients with liver disorders are often found to have a deranged lipid profile.**
- **The present results indicated that the lipid profile did not significantly change after 3 months of treatment with CTE.**
- **The CTE extract decreases the viral load in HBV-infected patients.**

# ✧ Discussion ✧

- ✧ • **Data presented in this study showed that the tested plant did not interfere with the integrity of the kidney or the thyroid.**
- **There was no change in the various hematological parameters, which indicate the herb may not be toxic and does not interfere with circulating red cells, hematopoiesis, and leucopoiesis.**
- ✧ • **The present finding suggests the CTE is not toxic since no marked change in the biochemical, hematological, or thyroid parameters was observed.**
- **Consequently, CTE may be considered an alternative treatment option for subjects suffering from hepatitis B viral infections, with exhibits minimal side effects.**
- **Further studies are needed using a large number of populations, different doses, and a longer duration of treatment to explore the mechanism of action and efficacy of CTE as an alternative, safe treatment against HBV.**

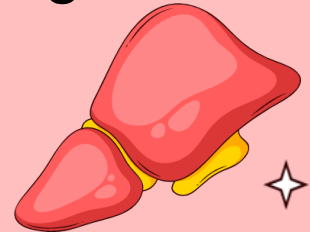
**05**

# **Conclusion**



# Conclusion

- The camel thorn extract decreases the viral load in HBV-infected patients, in part because the plant may have the ability to stimulate endogenous interferon production and the immune system in addition to its antioxidant and detoxifying effects.
- These findings indicate no marked change in the biochemical and hematological as well as thyroid parameters, these suggesting that the safety of *Alhagi Maurorum*.



# References

Gargoum et al. (2022) A human study on the effect of Alhagi Maurorum (camel thorn) on patients suffering from hepatitis B virus. Mediterr J Pharm Pharm Sci. 2 (4): 39 - 47.

Thank  
you!

