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# **EFFECT OF LONG-TERM USE OF *Eurycoma longifolia* ON THE LIVER**

## **(Histology Assessment)**

\*Hamoud Alfaqeh

Faculty of Dentistry  
International Islamic University Malaysia  
25200 Kuantan, Pahang DM, Malaysia

\*Corresponding Author: Hamoud Hussein Alfaqeh  
Email: [fanousi08@gmail.com](mailto:fanousi08@gmail.com)/[alfaqeh@iium.edu.my](mailto:alfaqeh@iium.edu.my)





الجامعة الإسلامية العالمية ماليزيا  
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA  
بُونَيْرِيسْتَقِي السَّلَامُ اِنْبَارًا نَجْسًا مَلْسِيًا





# INTRODUCTION

- ✓ Medicinal plants have been used since the time immemorial for medical purposes with respect to benefit mankind.
- ✓ *Eurycoma longifolia* Jack (**ELJ**) is one of the medicinal plant that is well known among various ethnic groups in Asia including Malaysia for enhancing health (1).
- ✓ It has been claimed that **ELJ** improves men's power during sexual activities(2).
- ✓ In the present the **ELJ** water extracts has a better market value as beverage (3).
- ✓ There is a lack of scientific evidence or published data on the efficacy of long-term consumption of **ELJ** as beverage among men and women for its vitality during copulation, and traditional uses for energy incited us to evaluate its effect on the safety of body organs (4)

1



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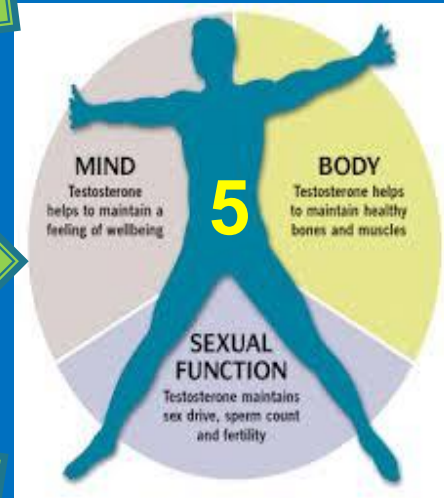
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# THE OBJECTIVE OF THIS STUDY

The present study is aimed to determine if long term consumption of *Eurycoma longifolia* Jack as beverage could have any deleterious effects on the liver tissue in rats.

# Materials and methods

- ✓ The study was conducted after an approval from the Research Management Center, International Islamic University Malaysia (IIUM).
- ✓ Thirty two Sprague-Dawley male rats were used and randomly divided into three test groups and control.
- ✓ Water extract of **ELJ** was given orally and daily for 5 weeks
- ✓ Rats were sacrificed and full liver tissue was obtained for histology assessment

The experiment is designed as shown in the table below

<u>Gp</u>	<u>Rat</u>	<u>Treatment for duration of 5 weeks</u>	<u>Doses intake</u>	<u>Doses duration</u>
I	8	<i>ELJ</i> water extract 250 mg/kg bw	Orally	Daily for 5 weeks
II	8	<i>ELJ aqueous</i> extract at 500 mg/kg bw	-----	-----
III	8	<i>ELJ aqueous</i> extract at 1000 mg/kg bw	-----	-----
IV	8	Distilled water ( control)	-----	-----



# The Result

## Clinical observations

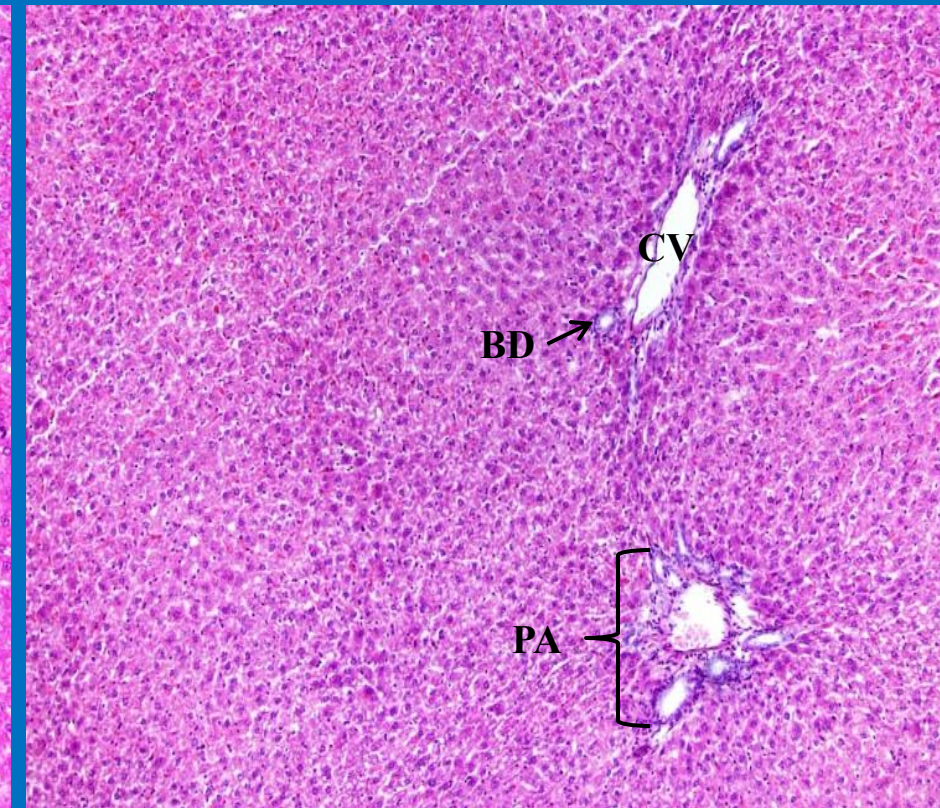
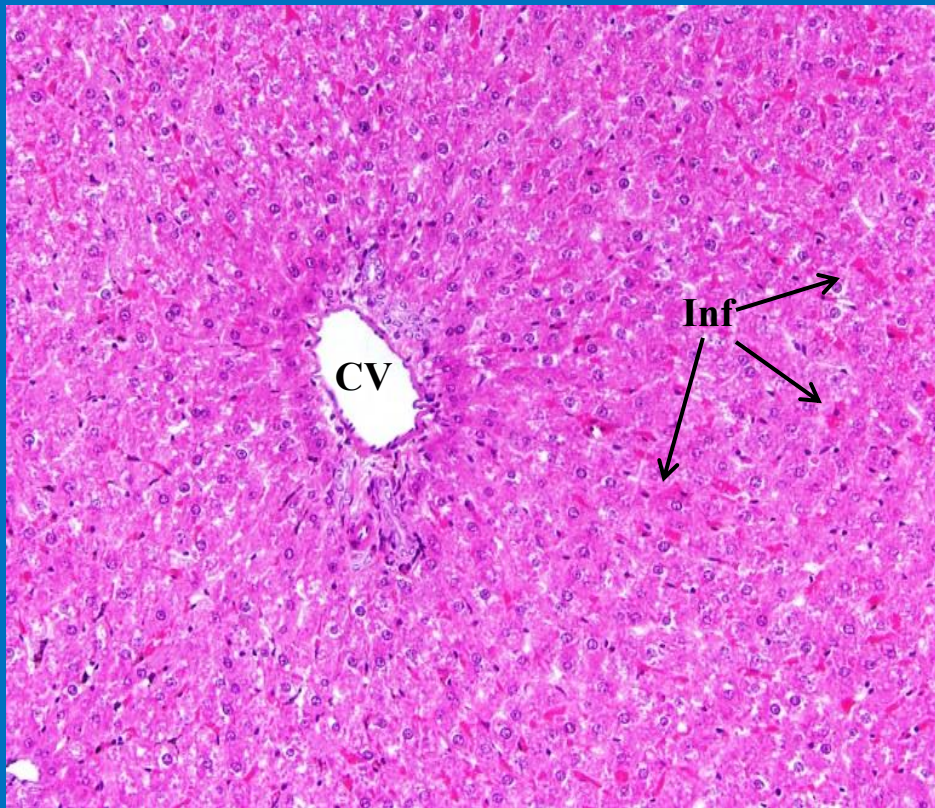
There was no evidence of infection or mortality among rats was observed in any of the animals before and during the experiment.

# Microscopic observations



## With low dose (250 mg / kg, bw) ELJ

## Control



*Group I: ELJ water extract 250 mg/kg bw. shows mild hydropic, fatty changes and mild haemorrhage and mono nuclear infiltration 20x*

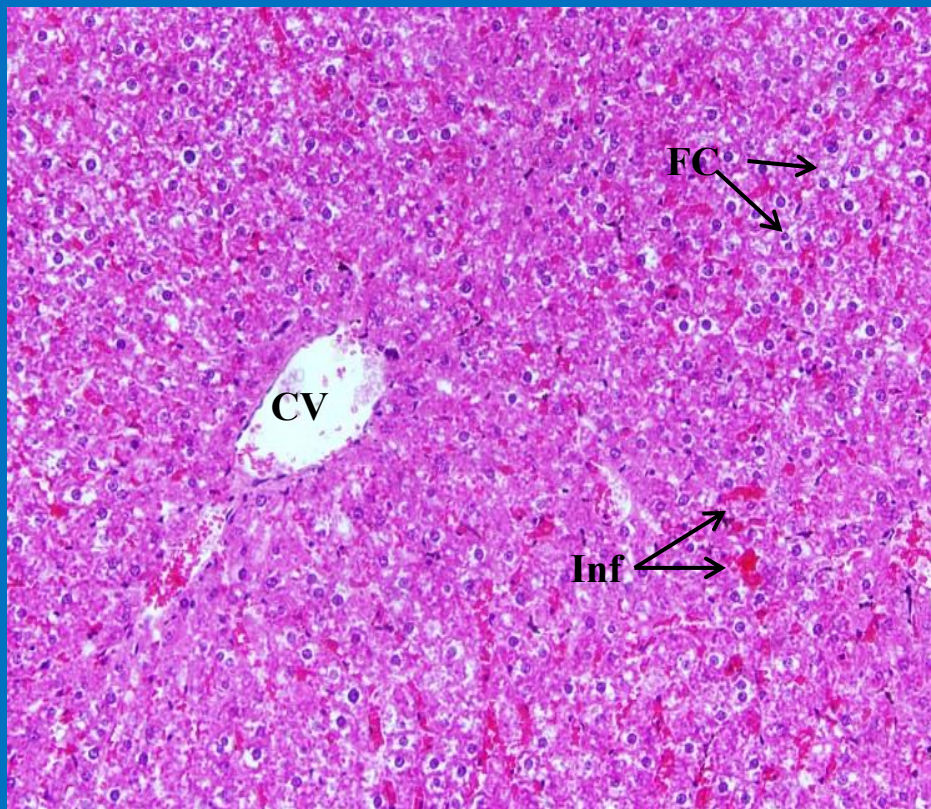
*Group control (Distilled water alone showed normal liver tissue, magnification 20x.*

**In**- inflammation, **CV**-central vein, **PA**-portal area, **FC**-fatty changes and **BiD**- Bile duct.

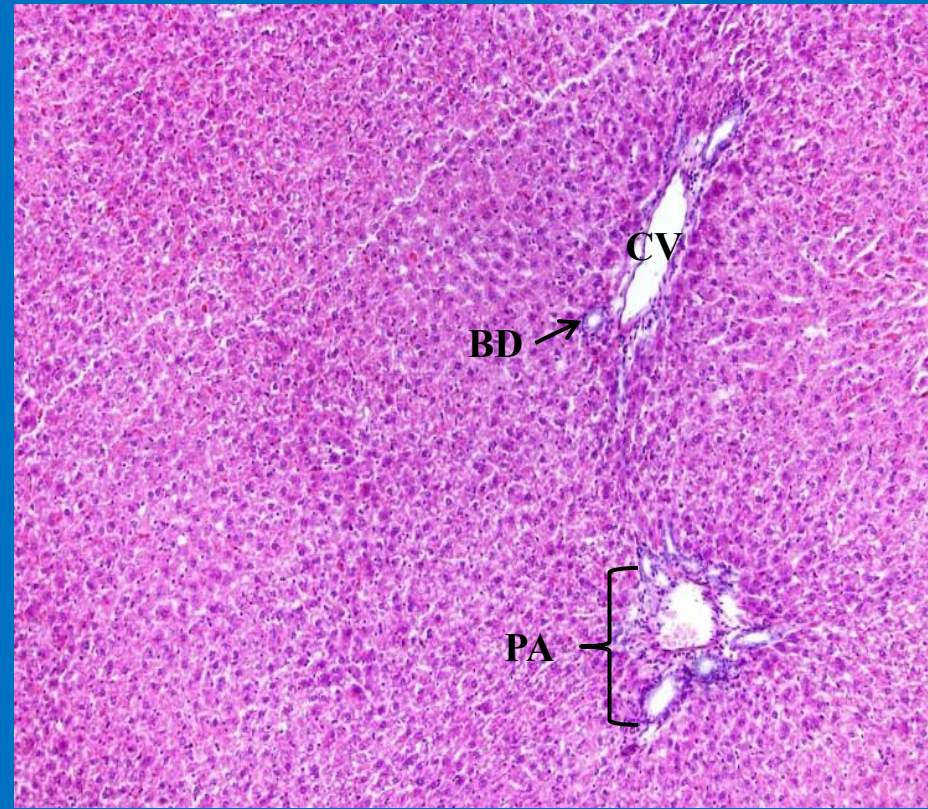


## With medium dose (500 mg / kg, bw) ELJ

## Control



*Liver tissue from group II, treated with ELJ medium dose (500 mg / kg, bw) Shows moderate fatty changes and inflammation 20x*



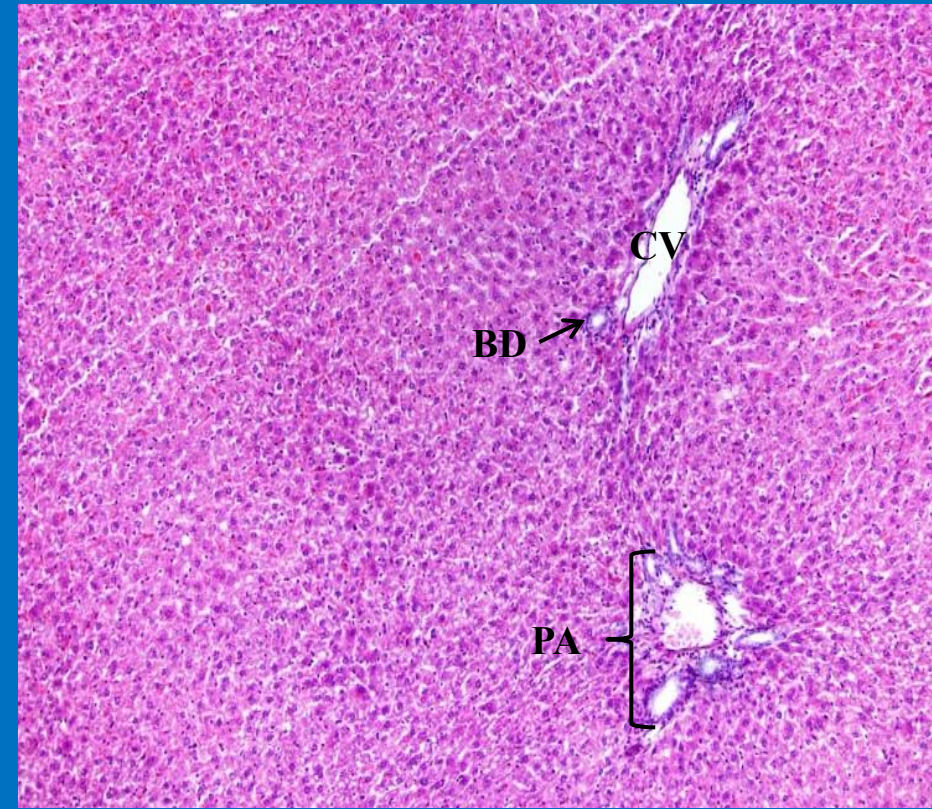
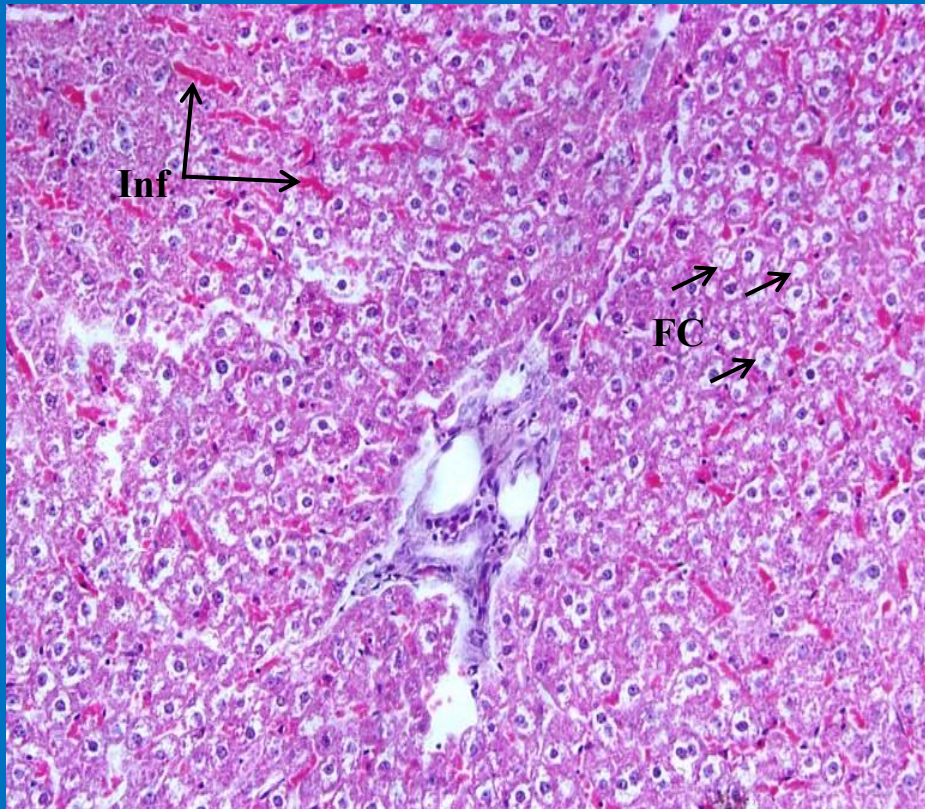
*Liver tissue from group control (Distilled water alone showed normal liver tissue, magnification 20x*

**In**- inflammation, **CV**-central vein, **PA**-portal area, **FC**-fatty changes and **BiD**- Bile duct.



## High dose (1000 mg / kg, bw) ELJ

## Control



*Liver tissue group 3 treated with ELJ high dose (1000 mg / kg, bw) shows severe degeneration of hepatocytes, fatty changes, degeneration of hepatocytes and haemorrhage 20x.*

*Group control (Distilled water alone) showed normal liver tissue, magnification 20x*

**In**- inflammation, **CV**-central vein, **PA**-portal area, **FC**-fatty changes and **BiD**- Bile duct.



# Discussion

- ✓ The levels of safety for the use of herbal drugs have become the center of attention now.
- ✓ Various herbal drugs in the market are prescribed for various infirmities **without including** any toxicity profile.
- ✓ Such prescriptions may cause serious or fatal problems for the patients who are dependent on such traditional medications.
- ✓ To our knowledge at present there are no available data in the literature on the safety and on the side effects or any deleterious effects of long term use of the products prepared from the ELJ plant.
- ✓ The study of long-term consumption of ELJ as daily beverage and its potential efficacy on the safety of some vital organs such as liver are not fully studied yet.

# Conclusion

- ❑ It is strongly suggested that Regular use of *Eurycoma longifolia* Jack (*ELJ*) at low doses does not appear to cause any toxic effect on liver and could be considered safe herbal supplement as far as the safety of liver in human being is concerned.
- ❑ The long-term daily consumption of *ELJ* when taken in large quantity either as beverage or capsules may cause fatty changes, haemorrhage and hepatocytes degeneration in the liver tissue

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# Publications

**Hamoud Hussein Alfaqeh** and Qamar Uddin Ahmad **2013**. Effect of long-term use of Eurycoma Longifolia Jack on the pancreas in rats: Histological assessment. Journal of Regenerative Research 2(2), 22-25.

**Hamoud Al Faqeh**, Bin Mohamad Yahya Nor Hamdan, Hui Cheng Chen, Bin Saim Aminuddin, Bt Hj Idrus Ruszymah. **2012**. The potential of intra-articular injection of chondrogenic-induced bone marrow stemcells to retard the progression of osteoarthritis in a sheep model. Journal of Experimental Gerontology 47, 458–464.

**Hamoud Hussein Al-Faqeh** et al **2011**. The effect of eurycoma longifolia jack (tongkat ali) on carbon tetrachloride -induced liver damage in rats. Malay J Pharm Sci, Vol. 8, No. 2.

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# Thank you for listening

