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EVALUATION OF ANTI-INFLAMMATORY ACTIVITY OF HABB-E-AZARAQI UNANI FORMULATION IN ANIMAL MODELS

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ABSTRACT
When exposed to certain harmful operators, the body may have a strong physiological response known as aggravation. During times of stress, the body releases cells and arbiters to defend itself against infection-causing bacteria. The effects of habb-e-anti-inflammatory azaraqi are due to the herb's ability to prevent the formation of leukotrienes. The carrageenan-induced paw edema demonstration is widely used to determine the efficacy of natural compounds in reducing inflammation. The present study demonstrated that Carrageenan infusion caused paw edoema volume, with the greatest amount of edoema seen at the 5-hour point. According to the unani, or habb-e-azaraqi, definition, the edoema present during the severe stage of aggravation may be mitigated. The anti-inflammatory effects of habb-e- azaraqi are based on the herb's ability to prevent the production of leukotrienes. Consistent with the findings of the research, administration of Habb-e-azaraqi to mouse models prevented Carrageenan-induced inflammations, proving its potent anti-inflammatory effects.

KEYWORDS: Carrageenan-induced paw edoema, of habb-e- azaraqi and unani.

INTRODUCTION

Aggravation may be a significant physiological response that happens in reaction to numerous distinctive sorts of harming operators, counting physical injury, bacterial contamination, chemicals, and physical wonders, with the extreme objective of limiting harm and encouraging tissue recuperating. The fiery reaction is significant for post-injury tissue repair, immunological observation, and recovery. The discharge of cells and arbiters amid aggravation secures the body against infection-causing pathogens.

The result of an illness handle, its advancement or abatement, is decided by a fragile adjust between neighborhood components, one of which is irritation, an fundamental cellular reaction caused by various immunological, mechanical, or chemical push components. An fiery reaction could be a controlled cascade of occasions that starts with the discharge of pro-inflammatory go betweens that draw in master provocative cells to the location of harm to evacuate the irritating trigger or boost and concludes with an anti-inflammatory stage amid which inhabbitant tissue cells may obtain the capacity to self-protect against encourage enactment and damage. Redness (rubor), swelling (tumor), warm (calor; as it were pertinent to the body limits), torment (dolor), and misfortune of work were the five cardinal signs by which the people of old distinguished aggravation (functio laesa). Celsus, a Roman stargazer, named the primary four of these groups of stars, whereas Galen, a Greek doctor, named the fifth.[1]

Watched changes within the visual field are steady with the standard show of aggravation. Feeling hot is due to an increment in blood stream by means of broadened blood vessels to the body's limits, which have been cooled by the encompassing environment. Delayed incendiary reactions cause the skin to turn ruddy since of the expanded number of erythrocytes moving through the range, and to swell (edoema) since of the expanded liquid entry from widened and porous blood vessels into the encompassing tissues, the penetration of cells into the harmed region, and the testimony of connective tissue. Coordinate impacts of go betweens cause torment, whether from unique harm or through the taking after swelling of tangible nerves. The term "misfortune of function" might allude to the fundamental failure to move a joint since of swelling and inconvenience, or it can allude to the substitution of working cells by scar tissue.

The cellular reactions of macrophages, leukocytes, pole cells, platelets, etc., counting phagocytosis, as well as the creation of distinctive proteins distinguished as go betweens of irritation show up to be embroiled in both intense and persistent fiery ailments. There's a relationship between the seriousness of aggravation and

the discharge of go between into the circulatory system, which may lead to fever. Prostaglandin E2 (PGE2), nitric oxide (NO), tumor corruption calculate (TNF)-, 5-lipoxygenase (5-LOX), 12-lipoxygenase (12-LOX), framework metalloproteinases (MMPs), and hyaluronidases are all mediators included within the provocative reaction.[2]

AIM AND OBJECTIVESAIM

To evaluate the anti-inflammatory activity of Habbb-e-Azaraqi, unani formulation in animal models.

OBJECTIVE

- The purpose of present study is to determine the anti-inflammatory activity of Habbb-e-Azaraqi.

Experimental DesignPreparation of Drug

Solution of Habb e Azaraqi will be prepared by dissolving the drug in Normal saline.

Animals

- Wistar Rats of either sex weighing between 150-200 gmwill be used for this study. Totally 24 rats will be used inthe present study.

Drugs and Chemicals

Habb e Azaraqi solution Diclofenac sodium 20 mg/kg
Carrageenan 0.1ml of 1% suspension in distilled water.
Fresh Egg Albumin 0.1ml

METHODOLOGY

Experimental Protocol

1.) Carrageenan Induced Paw Edema

- Edema will be induced in rats with 0.1ml carrageenan in drug treated and non drug treated groups. The percentage inhibition of inflammation will be determined. The paw volume will be measured using Plethysmometer.
- The percentage inhibition of inflammation is then determined using the formula.
- The animals will be grouped into 4 groups of 6 animals each as follows:

Group – I (Control): Animals will receive 10ml/kg normal saline p.o.
Group – II (standard): Animals will receive Diclofenac Sodium 20mg/kg body weight by p.o.
Group – III (Test group with 75mg/kg): Animals will receive 75 mg/kg body weight of test drug solution by p.o.
Group – IV (Test group with 150mg/kg): Animals will receive 150 mg/kg body weight of test drug solution p.o.

2.) Egg Albumin induced paw edema

- Animals will be weighed and divided into four groups of six animals each.
- The animals will be administered normal saline, standard drug Diclofenac sodium 20mg/kg p.o. and test drug (75mg/kg and 150mg/kg) to respective groups.
- One hour post treatment, oedema will be induced by injecting 0.1ml of fresh hen's egg albumin into the subplantar tissue of right hind paws.
- The linear paw circumference is then measured using a Vernier caliper.

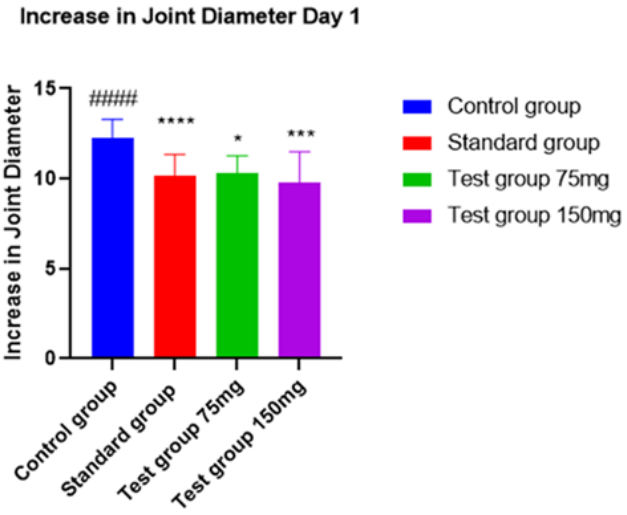
RESULTS

Phytochemical Screening

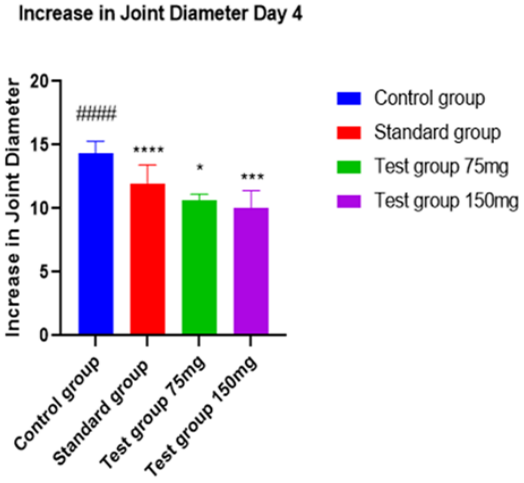
COMPOUNDS	PRESENCE
Carbohydrates	+++
ALKALOIDS	+++
FLAVONOIDS	+++
PHYTOSTEROLS	+++
PROTEINS AND AMINO ACIDS	+++
TERPENOIDS	+++
ANTHROQUINONES	+++
PHENOLIC COMPOUNDS AND TANNINS	+++

Egg albumin Increase in Joint diameter in mm

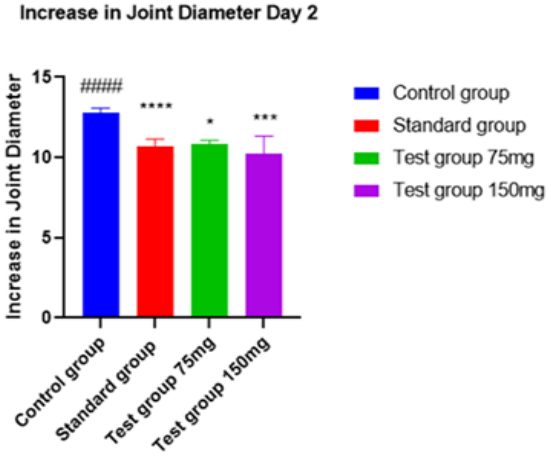
Groups	1st day	2nd day	4th day	6th day	8th day	9th day
Group – I	11.55±0.005	12.58±0.006	13.62±0.005	12.65±0.006	11.68±0.005	11.70±0.005
Group – II	9.25±0.025***	10.32±0.024***	10.98±0.029**	11.90±0.019**	12.65±0.23***	14.34±0.21***
Group – III	9.66±0.32*	10.65±0.21*	10.36±0.030***	10.06±0.020***	9.66±0.015***	9.66±03034***
Group – IV	8.58±0.058***	9.42±0.028***	9.02±0.021***	8.78±0.054***	8.52±0.026***	8.50±0.025***



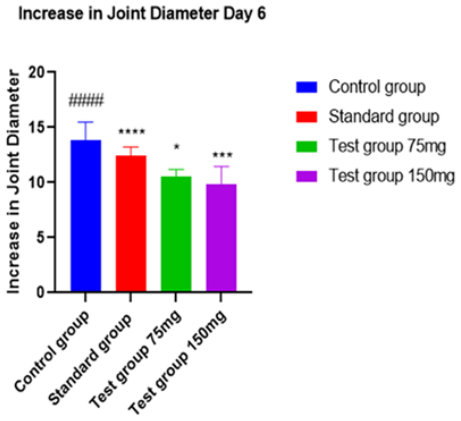
Increase in joint diameter day 1



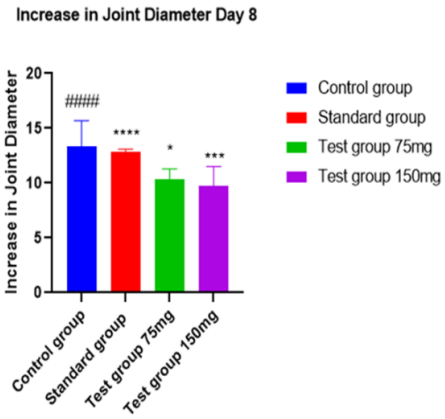
Increase in joint diameter day 4



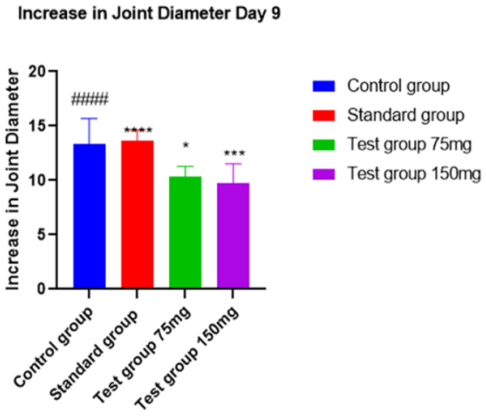
Increase in Joint diameter day 2



Increase in joint diameter day 6



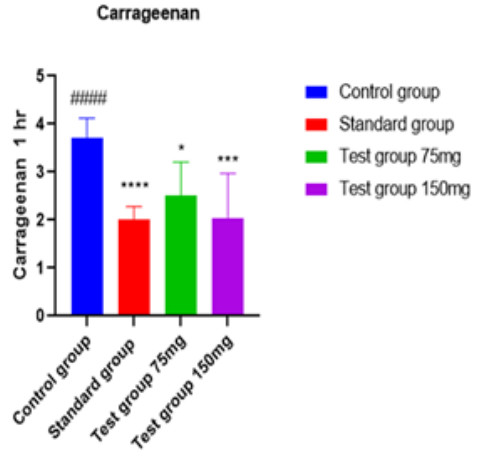
Increase in joint diameter day 8



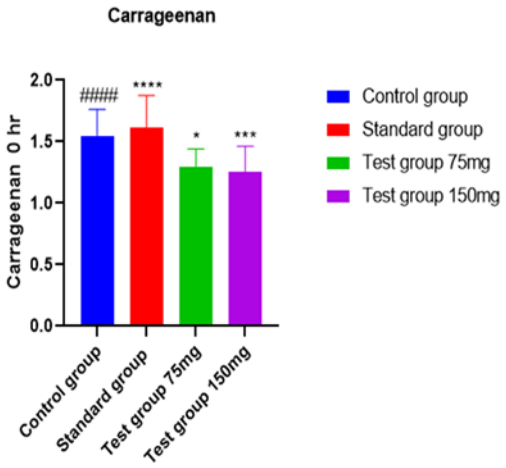
Increase in joint diameter day 9

	Paw thickness in mm					
Groups	**0 hr**	**1 hr**	**2 hr**	**3 hr**	**4 hr**	**% Inhibition**
Group – I	1.4±0.03	3.4±0.06	4.9±0.06	6.4±0.05	4.8±0.02	-
Group – II	1.4±0.04	2.2±0.03	2.9±0.04	3.1±0.02	2.2±0.04	57
Group – III	1.2±0.02	3.0±0.04	4.2±0.03	4.7±0.01	3.5±0.04	29
Group – IV	1.1±0.01	2.7±0.04	3.5±0.02	3.3±0.06	2.8±0.04	43

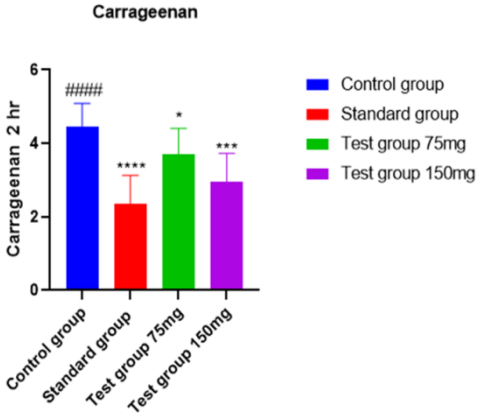
Carrageenan



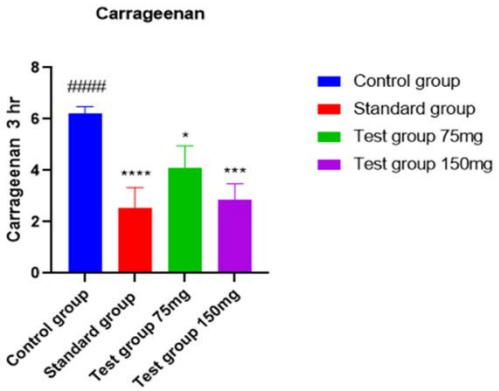
Carrageenan 0 Hr



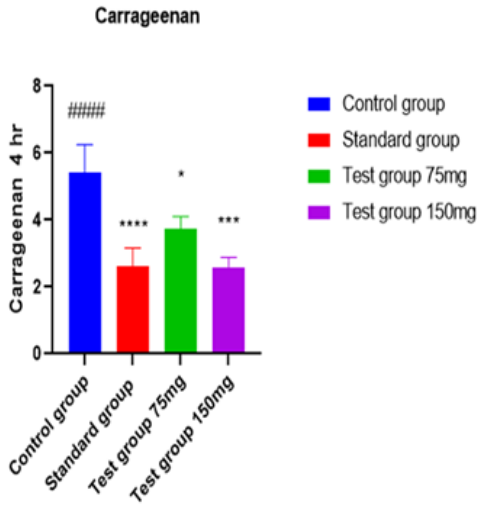
Carrageenan 1 Hr



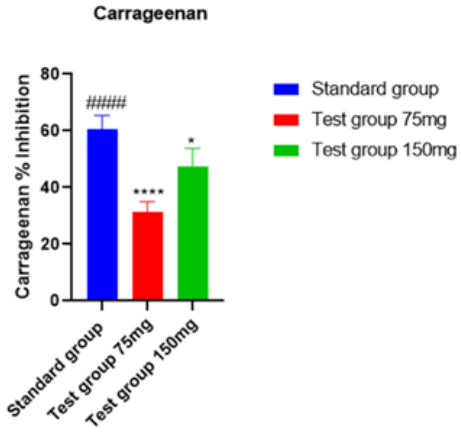
Carrageenan 2 hr



Carrageenan 3 hr



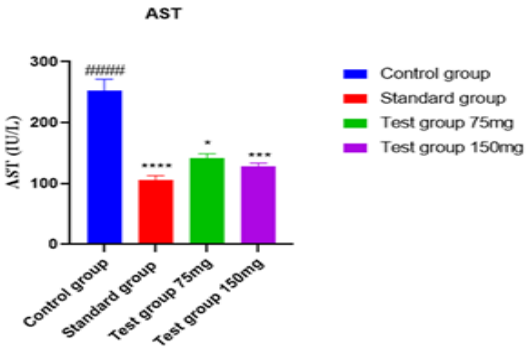
Carrageenan 4 hr



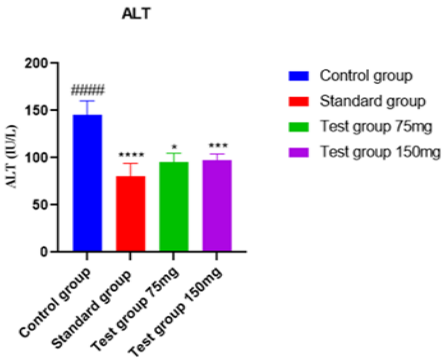
Carrageenan % inhibition

Biochemical parameters

Groups	AST	ALT	ALP	Serum creatinine
Group – I	240.15±21.98	135.00±10.60	263.00±15.88	1.05±0.002
Group – II	101.21±11.54	70.10±2.19	154.30±10.32	0.40±0.001
Group – III	136.25±10.58***	89.05±9.32***	146.21±5.63***	0.42±0.001***
Group – IV	124.11±3.61***	92.00±1.44***	160.36±6.33***	0.41±0.002***


AST
AST (IU/L)
300
200
100
0
#####
****
*
***
Control group
Standard group
Test group 75mg
Test group 150mg
Control group
Standard group
Test group 75mg
Test group 150mg

AST


ALT
ALT (IU/L)
200
150
100
50
0
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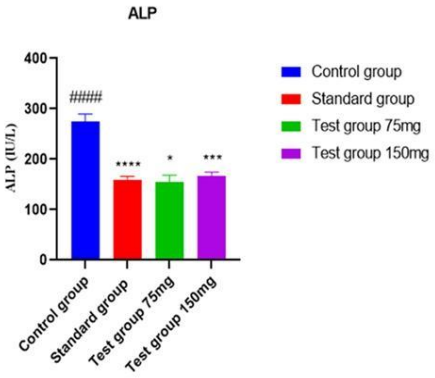
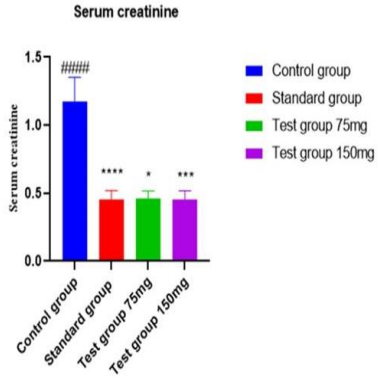
Control group
Standard group
Test group 75mg
Test group 150mg
Control group
Standard group
Test group 75mg
Test group 150mg

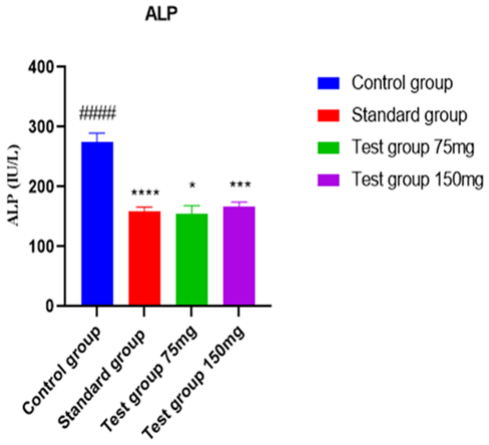
ALT


ALP
ALP (IU/L)
400
300
200
100
0
####
****
*
***
Control group
Standard group
Test group 75mg
Test group 150mg
Control group
Standard group
Test group 75mg
Test group 150mg

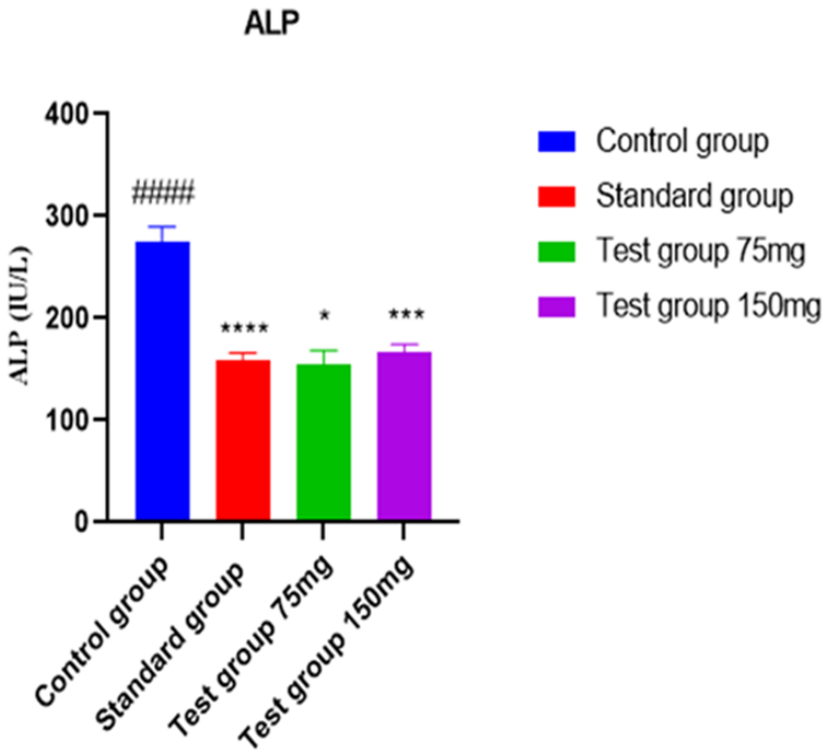
ALP

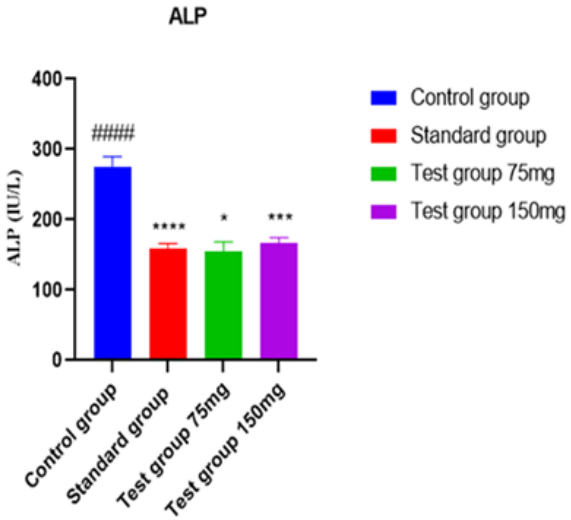


SERUM



CREATININE

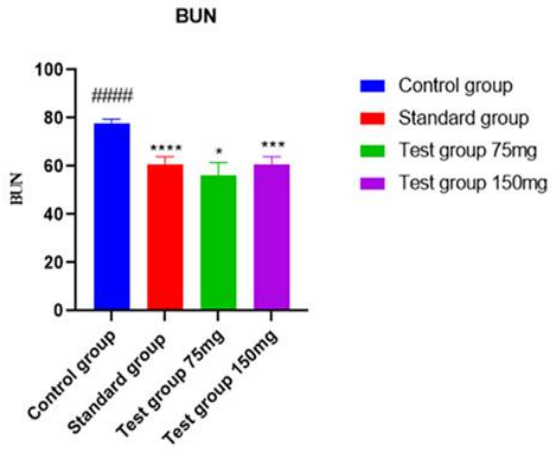


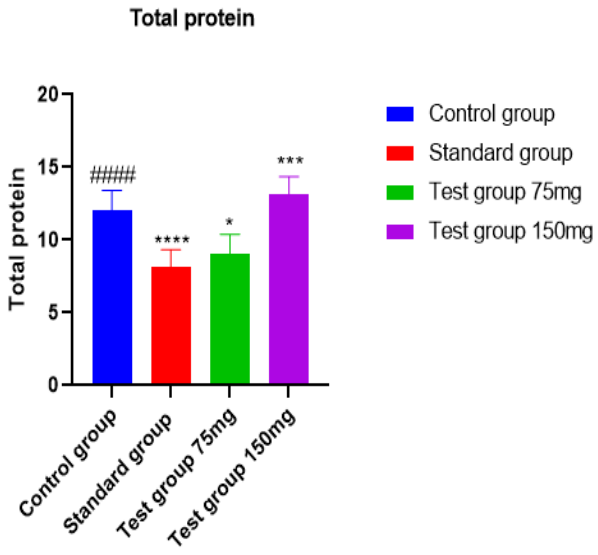


BUN

Groups	BUN	Total protein
Group – I	76.32±2.36	11.02±0.02
Group – II	58.65±3.88	7.33±1.21
Group – III	52.40±1.220	8.10±0.03
Group – IV	58.30±1.20	12.30±0.54

BUN Total Protein





DISCUSSION

Inflammation is an imperative physiological response that happens in reaction to a wide assortment of harmful jolts, such as tissue damage, bacterial disease, chemical presentation, and indeed physical occasions, with the objective of diminishing harm and advancing tissue recuperation. When irritation is display after damage, tissue recovery, immunological checking, and mending all go more easily. The incendiary reaction shields us by discharging cells and go betweens that annihilate pathogens and put a stop to sicknesses. Irritation, a basic cellular reaction activated by different immunological, mechanical, or chemical stretch components, is beneath the tight direction of nearby components that eventually choose the course of the ailment and its potential remedy.

Compared to routine Western pharmaceutical, unani pharmaceutical encompasses a part of benefits. To supply as it were one outline: Diminished potential for antagonistic impacts: Over time, unani cures may be more secure to utilize than pharmaceuticals since they are frequently well acknowledged by patients and have less negative impacts. Remedially valuable for diligent wellbeing issues: Persistent wellbeing issues that do not move forward with ordinary treatment frequently respond way better to Unani treatment. The joint pain medication Vioxx, for occasion, was pulled back since of the threat of cardiovascular issues it may cause. Unani pharmaceutical, on the other hand, utilizes moreun obtrusive dietary alterations, such as avoiding certain vegetables at night and cutting down on white sugar, to attain the same comesabout.

CONCLUSION

In arrange to decide the viability of normal substances in lessening aggravation, the carrageenan-induced paw edoema demonstrate is frequently utilized. The current examination illustrated that paw edoema volume was produced by Carrageenan infusion, which the sum of edoema seen was most prominent at the 5-hour mark. The edoema seen within the intense stage of aggravation was decreased by the habb-e-azaraqi, unani definition. Habb-e-anti-inflammatory azaraqi's impacts come from

its capacity to anticipate the generation of leukotrienes. Habb-e-azaraqi restrained Carrageenan-induced inflammations in rodent models, demonstrating that it has powerful anti-inflammatory impacts, concurring to the study's discoveries.

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