ORIGINAL ARTICLE

The effect of Phytase, Yeast and Nigella Sativa on the liver tissue of adult albino male rat

HAWASIN AHMED A.ABID[1], SANAA H. MOHAMMED[2], FAEZA N. TOAMA[2], KASIM SAKRAN ABASS[3]
[1]*Department of Biology, College of Science, University of Tikrit, Tikrit, Iraq*
[2]*Department of Biology, College of Science, University of Kirkuk, Kirkuk, Iraq*
[3]*Department of Anatomy and Histology, College of Veterinary Medicine, University of Kirkuk, Kirkuk, Iraq*
Correspondence to Sanaa H Mohammed, Email: sanaabioyl@uokirkuk.edu.iq

ABSTRACT

Aim: To show role of phytase, yeast and *Nigella sativa*on the liver of male rat.
Methods: 25 adult male rats were used in this study and divided into five groups (5 rats each group); control group. second group: rat feeding with special diet content (50mg/kg) phytase for four weeks. Third group: rat feeding with special diet content (25mg/kg) phytase and (50mg/kg) yeast for four weeks. Fourth group: rat feeding with special diet content (25mg/kg) phytase and (25mg/kg) yeast for four weeks. Fifth group: rat administrated with Nigella sativa (100mg/kg) extract for four weeks.
Results: Histological study of control group section show normal form of hepatocytes and central vein with normal size of sinusoids. the section of (50mg/kg) phytase group show no difference between this group and control group. The sections of (25mg/kg) phytase and (50mg/kg) yeast group and (25mg/kg) phytase and (25mg/kg) yeast also show no difference between these groups and control group. Section of *Nigella sativa* (100mg/kg) extract show no difference between this group and control group.
Conclusion: It was concluded that phytase, yeast and *Nigella sativa*has been good effect on the liver tissue of male rat.
Keywords: Phytase enzyme; Yeast: *Nigella sativa*; Liver tissue; Rat

INTRODUCTION

Phytases are an uncommon class of phosphatases that catalyze hydrolysis of myoinositol-(1, 2, 3, 4, 5, 6)-hexakisphosphate or phytic destructive (Ins P6) to less phosphorylatedmyo-inositol subordinates and inorganic phosphate. Phytate corrupting development has been perceived in plants, microorganisms, and in certain tissues of animal and phytases from plant and microbial species[1,2]. The hydrolytic movement of phytase on phytin-phosphorus has been known for a long time[3]; in any case, immense degree, business making of phytase has happened unmistakably in the 1990's[4]. Phytic destructive has a potential for limiting firmly charged proteins, amino acids, and moreover multivalent cations or minerals in sustenances[5]. Nigella sativa (Family Ranunculaceae) is described as a powerful and useful herb. where, various examines revealed its wide scope of pharmacological prperities. another name or traditional name of N. sativa is dim seed. N. sativa is located in Europe (South), Africa and Asia and it is cultured in different countries as Middle Eastern Mediterranean region, India, Turkey and other countries[6,7]. Seed of N. sativa and its oil contenting a different compounds such as thymoquinone and Its derivatives, thymol, nigellimine-N-oxide, carvacrol, nigellicine and other compenents[8,9]. In standard course of action of drug dull cumin seeds are effective against hack, asthma, cerebral disorders, migraine, precariousness, respiratory passage blockage, dysmenorrheal, chubbiness, diabetes mellitus, loss of movement, back pain, infection, irritation, solidness, hypertension, and gastrointestinal defects, for instance, dyspepsia, tooting and free entrails[10]. It has moreover been used as an energizer, diuretic, and carminative[11,] similarly as it is applied to abscesses, nasal ulcers, orchitis, skin irritation and joints trauma[10]. Seed oil is seen as neighborhood narcotic[12,13]. In this manner, the purpose of present examination is show the effect of phytase and N. sativa in grown-up male rodents.

MATERIALS AND METHODS

Animal model: Animal, (20 male rats) used in this studywith weight 175-200 gm and age 4-6 month, are obtained from Science College/ Tikrit University, and kept on normal diet.
Crude Nigella sativa oil: Crude oil was purchased traditionally from the local market in Tikrit city Material, this oil was administered orally to rat animal feeding intubations needles (0.3ml from Nigella sativa oil).
Phytase: Phytase that used in this study was Denmark (phytase Feed-Bio) Novozymes by add 500mg/kg in rat food.
Yeast: The yeast that used in present study is a baker's yeast, S. cerevisiae, in suspensions that were washed one time by using phosphate-buffered saline.
Experimental design: Twenty animals (rats) were used in this study and then divided as follow (five rats in each group):

A. Control group received standard pellet diet only for seven days and then killed.
B. Second group rat feeding with special diet content (50mg/kg) phytase for four weeks.
C. Third group rat feeding with special diet content (25mg/kg) phytase and (50mg/kg) yeast for four weeks.
D. Fourth group rat feeding with special diet content (25mg/kg) phytase and (25mg/kg) yeast for four weeks.
E. Fifth group rat administrated with Nigella sativa (100mg/kg) extract for four weeks.

Histology processing: Liver pieces were collected from rats and fixed by using 10% formalin, processed by paraffin

method, cut by micrometers at five in thickness and stained with Hematoxylin and Eosin (H&E) stains[14]. Slides were examined by optica Microscope (Italy).

RESULTS

The section of control group show normal form of hepatocytes and central vein with normal size of sinusoids (Fig: 1). the section of (50mg/kg) phytase group show no difference between this group and control group (Fig: 2). The sections of (25mg/kg) phytase and (50mg/kg) yeast group and (25mg/kg) phytase and (25mg/kg) yeast also show no difference between these groups and control group (Fig. 3,4). Section of *Nigella sativa* (100mg/kg) extract show no difference between this group and control group (Fig. 5).

Figure 1: Liver section control group show normal form of central vein with polygonal shape of hepatocytes (HC) and sinusoids (S) H&E X400.

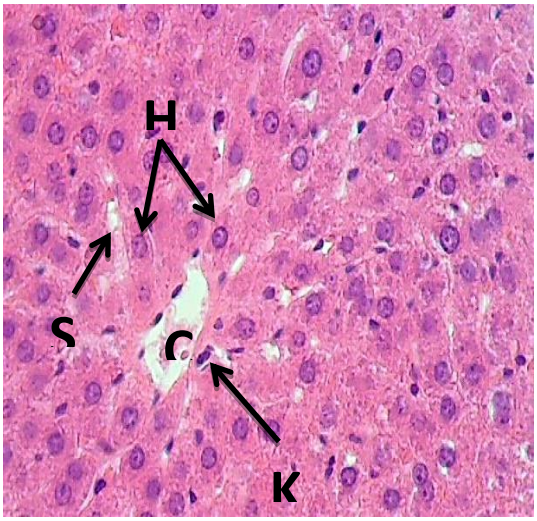


Fig.2

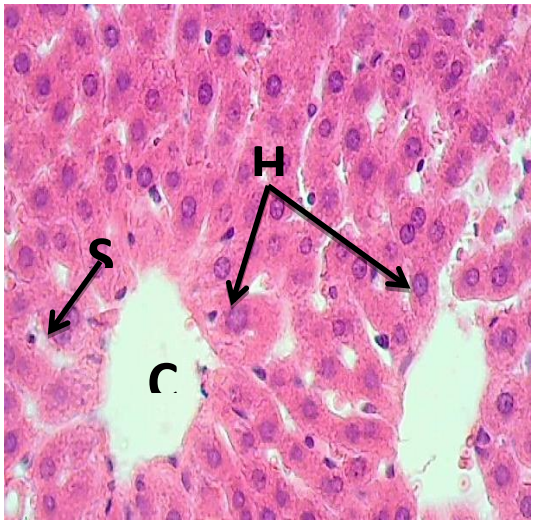


Figure 3: Liver section third group show normal form of central vein with polygonal shape of hepatocytes (HC) and sinusoids (S) H&E X400.

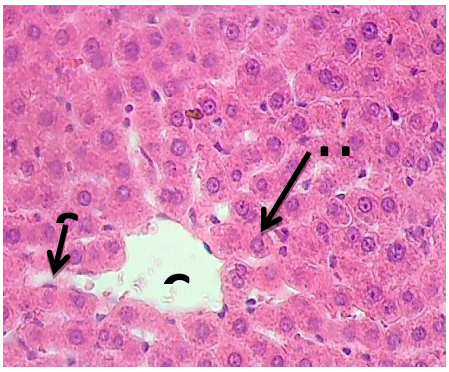


Figure 4: Liver section fourth group show normal form of central vein with polygonal shape of hepatocytes (HC) and sinusoids (S) H&E X400.

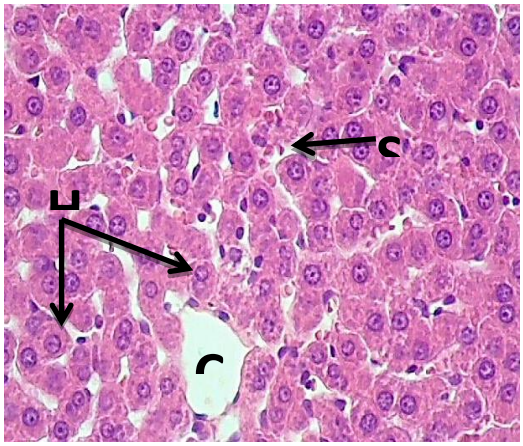
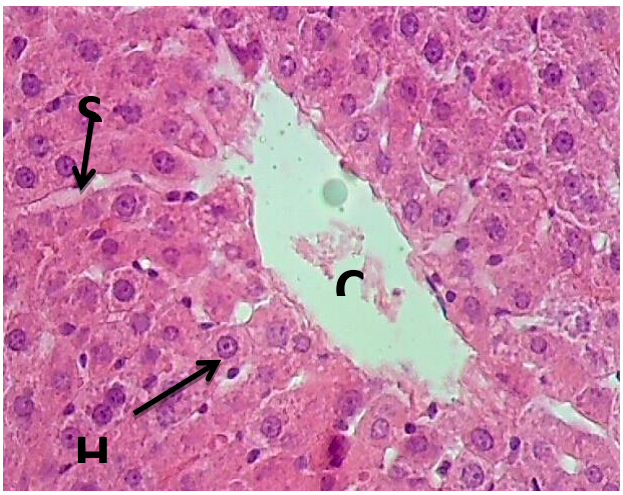


Figure 5: Liver section fifth group show normal form of central vein with polygonal shape of hepatocytes (HC) and sinusoids (S) H&E X400



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DISCUSSION

Phytase is utilization gives assurance against an assortment of malignant growths intervened through antioxidation features, interference of cell transduction, cell cycle improvement of common executioner (NK) cells movement. It has helpful use against different diseases such as diabetes mellitus (DM), atherosclerosis and lessens kidney stone development, HIV-1 and overwhelming metal poisonous quality[15]. Right now, and yeast show defensive impact for liver tissue particularly phytase has an enemy of oxidant property is one of the best organic favorable circumstances of phytate[16]. About the Nagilla sativa, extricate show defensive impact for liver tissue right now, examines have been directed on the impact of Nagilla sativa removes on fluctuates body frameworks in vitro or in vivo. The pharmacological examination of the seed extricates uncover abroad range of exercises inclusive: immune-improvement, antihistamine effect, antidiabetic mellitus, antihypertenstion, calming, anticancer[17] inhibition of parasitic growth, antifungal effects, inhibition of bacterial growth, and cancer prevention agent[18]. Additionally, in investigation of[19] tried the basic oil of Nigella sativa for cell reinforcement movement and demonstrated that thymoquinonecarvacrol, t-anethole that may clarify Nigella sativa separate as hepato-defensive impact right now. The investigation of[20] the liver histopathology demonstrated marker decrease in sinusoidal widening ,midzonal corruption after treatment with Nigella sativa concentrate and this pointer to hepatoprotective activity against paracetamol.

CONCLUSION

It was concluded that phytase, yeast and *Nigella sativa*has been good effect on the liver tissue of male rat.

Conflict of Interests: The authors of this paper declare that he has no financial or personal relationships with individuals or organizations that would unacceptably bias the content of this paper and therefore declare that there is no conflict of interests.

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Ethical Approve: We declare that the study does not need ethical approval.

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