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***قسم النساء والولادة، كلية الطب، جامعة الملك سعود

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(\pm) Wister albino

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($r^2 =$. $r^2 =$.)

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$r^2 =$.)

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. ($r^2 =$

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- (Rao and Rao, .2004; Agarwal and Rao, 2000; Rao and Rao, 2003)
- (Shi and Maguer, 2000; Willis and Wians, 2003; Giovannucci, (Rao and Agarwal, 1999; Silke et al., 2008; Wu et al., 1999) al., 2004)
- (Adetayo and Rotimi, 2005; Maggio et al., 2003; Rao and Ali, .2007; Pratik and Vishal, 2007)
- (Miller et al., 1996; Mortensen and Skibsted, 1997; Giuseppe et al., 2007; Feeney, 2004; Rao and Rao, 2003)
- (Agarwal and *in vitro* .Rao, 1998)
- (Miller et al., 1996; Mortensen Free Radicals .and Skibsted,1997; Di-Mascio et al.,1989)
- (Pratik and Vishal, 2007; Rao and Ali, 2007; Tapiero et al., .2004; Matos et al., 2000)
- (Bohm et (NO₂·) al., 1995; Lou et al., 1995; Perera and (H₂O₂·) (Giuseppe et al., 2007) .Yen, 2007)

(Tinkler et

.al., 1994; Bohm et al., 1995)

.(Rao and Agarwal, 1999)

(/ /)

.(Breinholt et al., 2000)

(Astley and Elliott, 2005)

/

Omaye et Deoxyribonucleic acid (DNA) وقد توصلت دراسة

(al., 1996) إلى أن تناول

($P \leq 0.05$)

(Moreira et al., 2005)

Di-Mascio et al. (1989)

(Reifen et al., 2004)

Velmurugan et al. (2002)

(Hininger et al., 2001)

Lycopersicum esculentum

GS12

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(Caplain Oven FRP 4/8, France)

.(Ching-Hui et al., 2006)

°

وتعبئتها (Chang and Liu, 2007)

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Extraction of Lycopene

(Shi et al., 1999)

Kimax tube

(AND, 400, Korea)

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(Vortex-2 Genie, G-5-60E, USA)

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(Vacuum filtration)

(Vacuum

(Goodrich et al., 1993; Harwood et al., 1999; Sadler et al., desiccators)
.1990)

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Determination of Lycopene

Lycopene extinction coefficient (E%)

.(Chang and Liu, 2007)

HPLC

Shimadzu 2003 PC, Japan

(Edward and Lee, 1986)

. ×) بقياسات HPLC ShimackVP-ODS Lc-10AT :
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 . (ppm .)
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Experimental Diets

(American

(Reeves, 1997)

Institute of Nutrition "AIN")

. (. . .)
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(Nutritional Biochemical Corp., Cleveland, Ohio, USA)

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Experimental Animals

± Wister albino (-)

Central for laboratory animal and Experimental (-)

.Surgery (CLAES)

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Ad libitum

.(Mettler PM 2000, Switzerland)

Experimental Design

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(Milena et al., 2006)

.(Oshima et al.,1999

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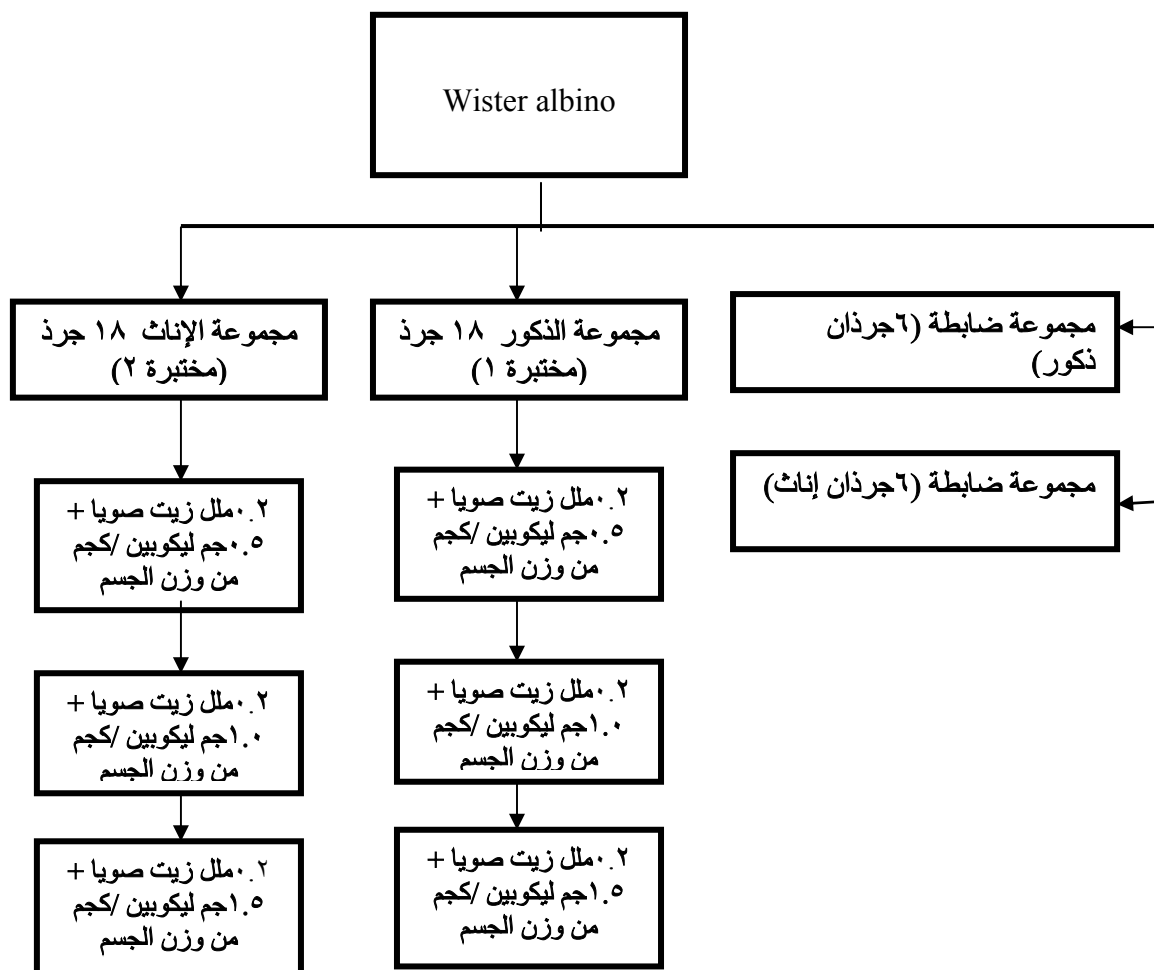
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الجدول رقم (١). مكونات العلائق (جم/١٠٠ جم) حسب المجموعات*.

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*(Reeves, 1997):

الشكل رقم (١). تصميم التجربة.



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Diethyl ether

(Laboratory glassware capillary tubes,

Eyes puncture

Germany)

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(Heraeus Labofuge 400)

(Accumax AV-100 series) Automatic pipettes

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Superoxide Dismutase (SOD)



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(Kakkar et al., 1978; Sun et al., 1988)

(Superoxide dismutase Assay Kit, 706002-96 well .USA)

Spectrophotometer Bio- TEK, 191720, USA

Glutathione Peroxidase



(Glutathione .(Rotruck et al., 1973)

peroxidase Assay kit, 703102-96 Well, USA)

Spectrophotometer Bio TEK, 191720, USA

Catalase



(Sinha, 1972)

(Catalase Assay Kit, 707002-96 Well. USA)

Plat reader, DIGNOSTIC PASTEUR LP 400, FRANCE

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.(SAS, 1997) (P<0.05)

Duncan tests

(Ching-Hui et al., 2006)

(Chang and

(Ching-Hui et al., 2006)

◦

Liu, 2007)

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.(Chen et al., 2000 ; Ching-Hui et al., 2006)

(Ching-Hui et al., 2006) /

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(Shi et al., 1999) . / .

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إلى (Karakaya and Nilüfer, 2007) .

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.(Bicanic et al., 2005)

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/ . . (P<0.05)

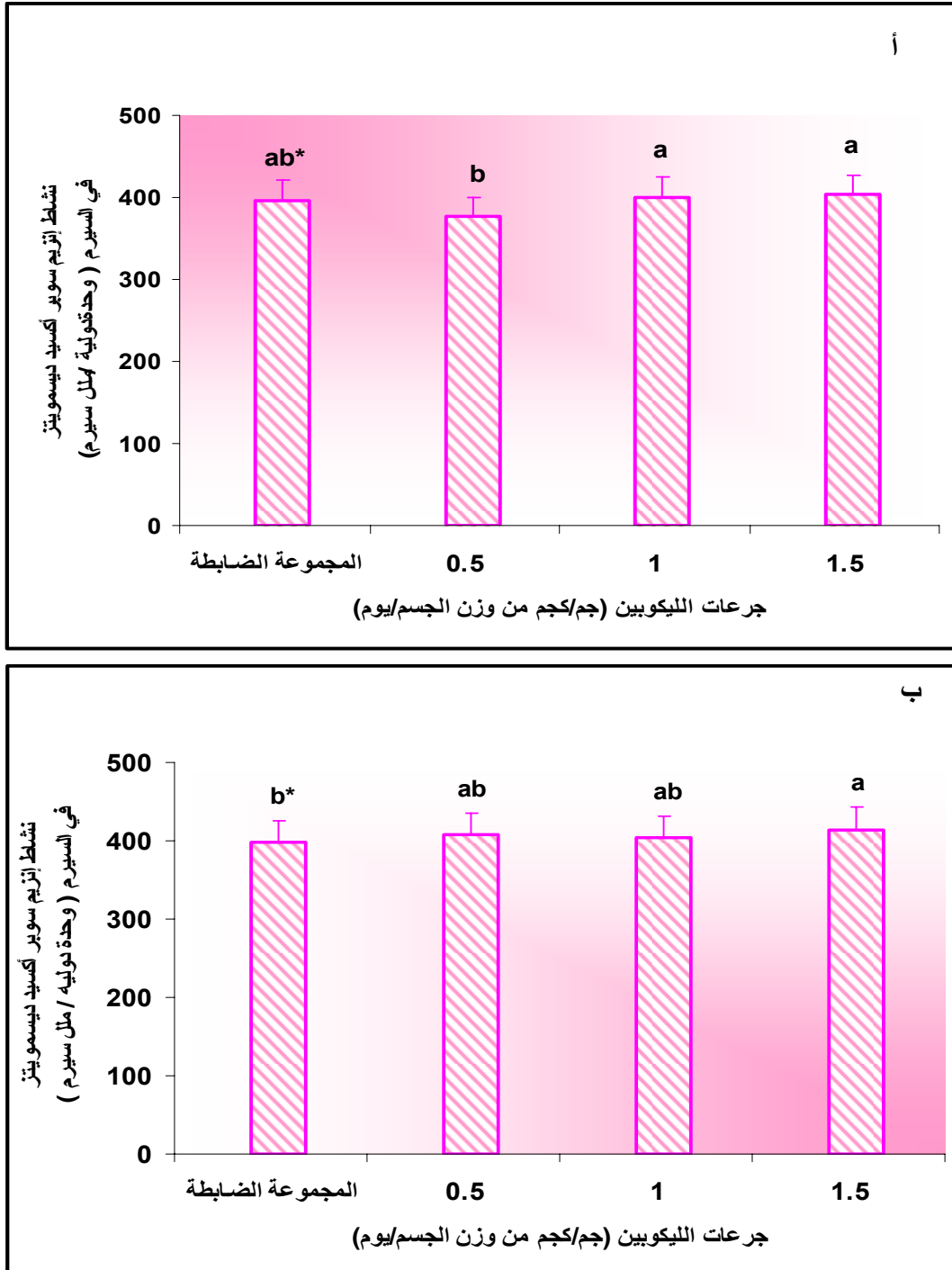
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. (P<0.0)

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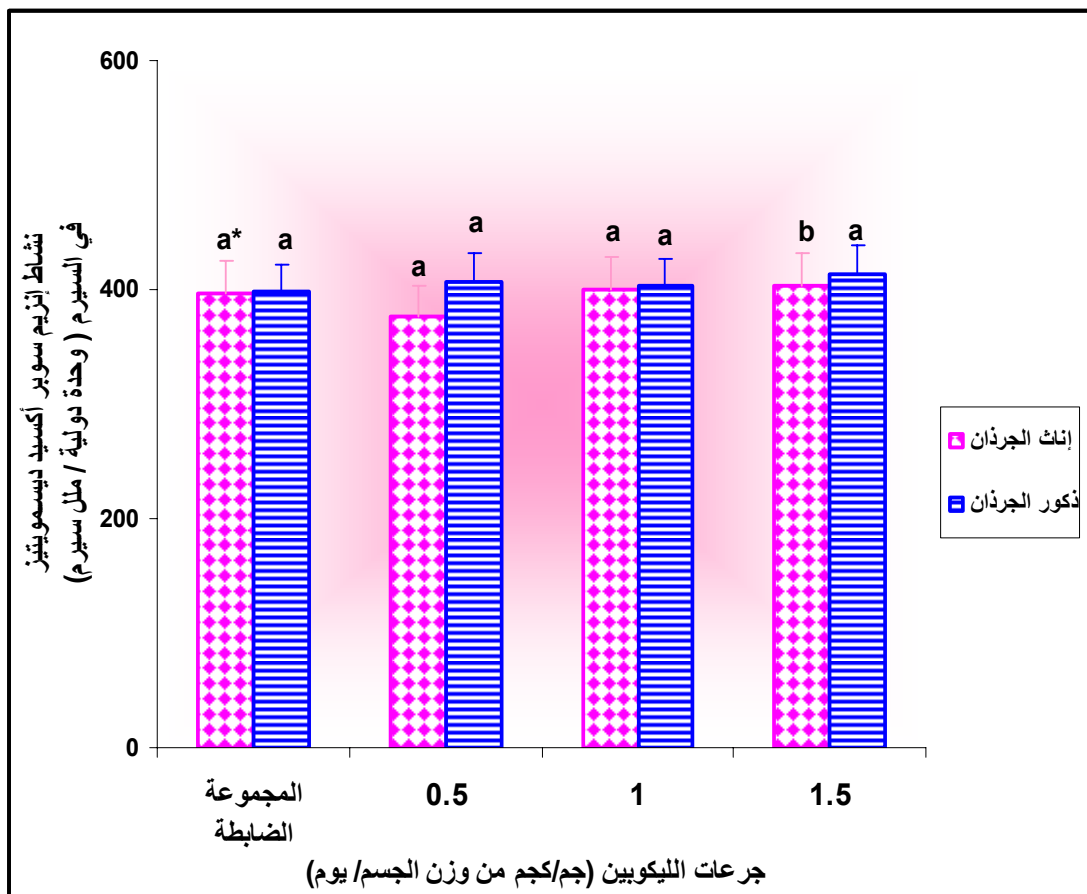
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 $(r^2=0.286)$ $(r^2= .)$

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.(P<0.05)

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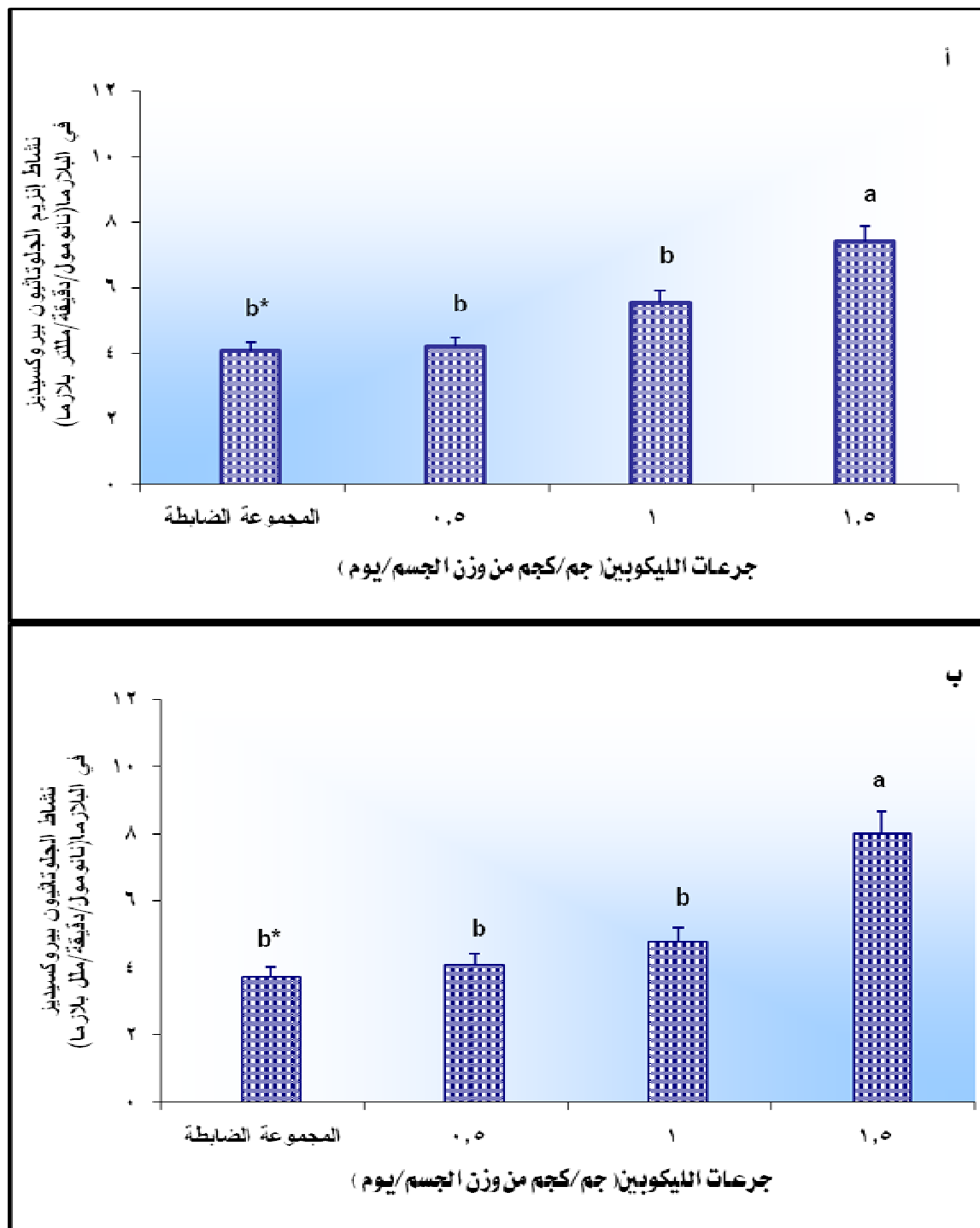
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$$r^2 = .٥٨٥$$

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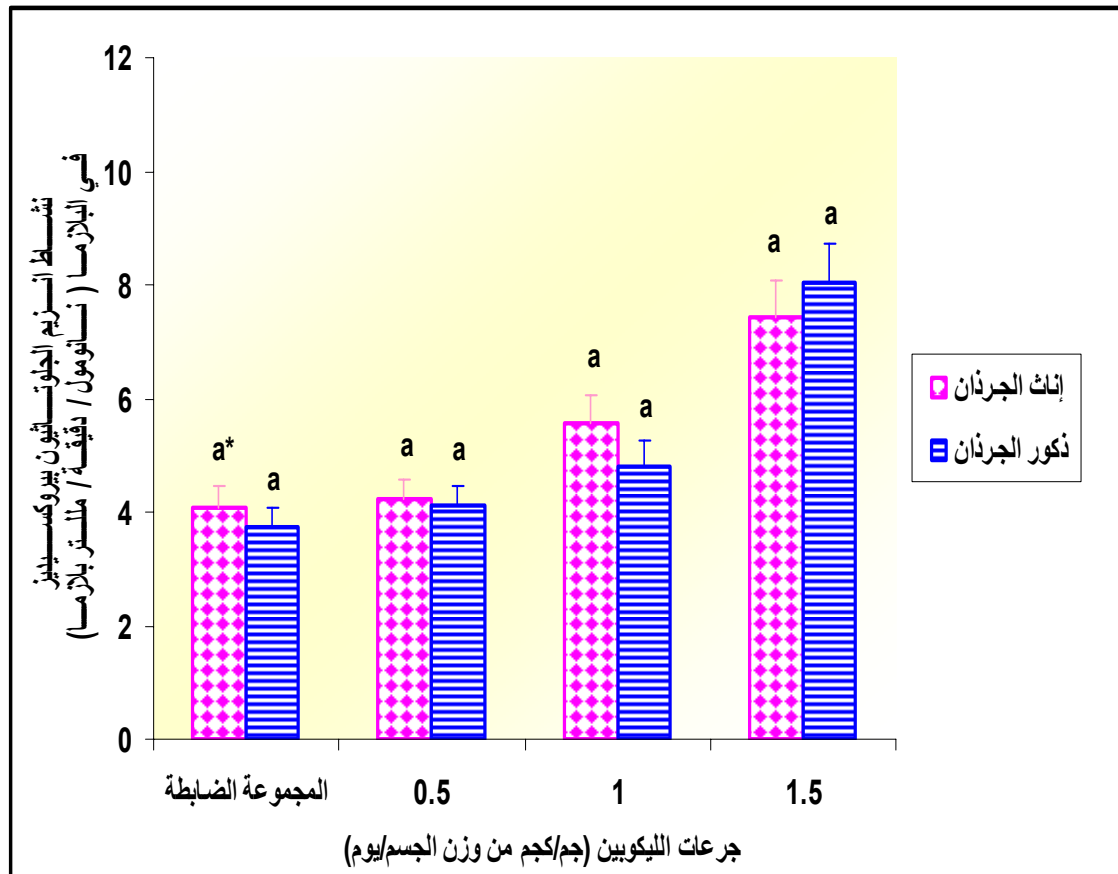
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*(P<0.05)

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.(P<0.05)

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(P≤0.05)

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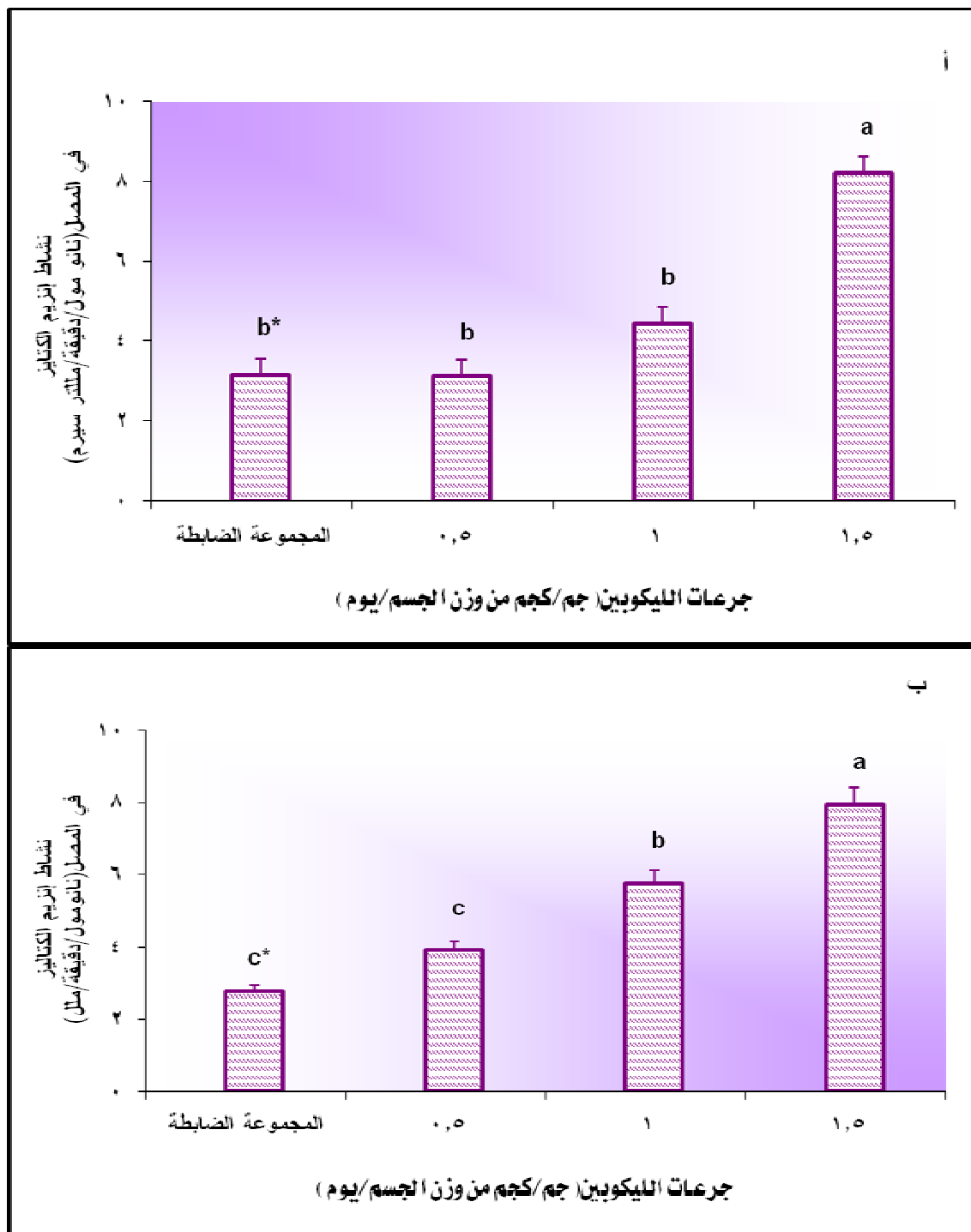
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*(P<0.05)

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 (r²= .)
 .(r²= .)

(Breinholt et al., 2000)

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(P<0.001)

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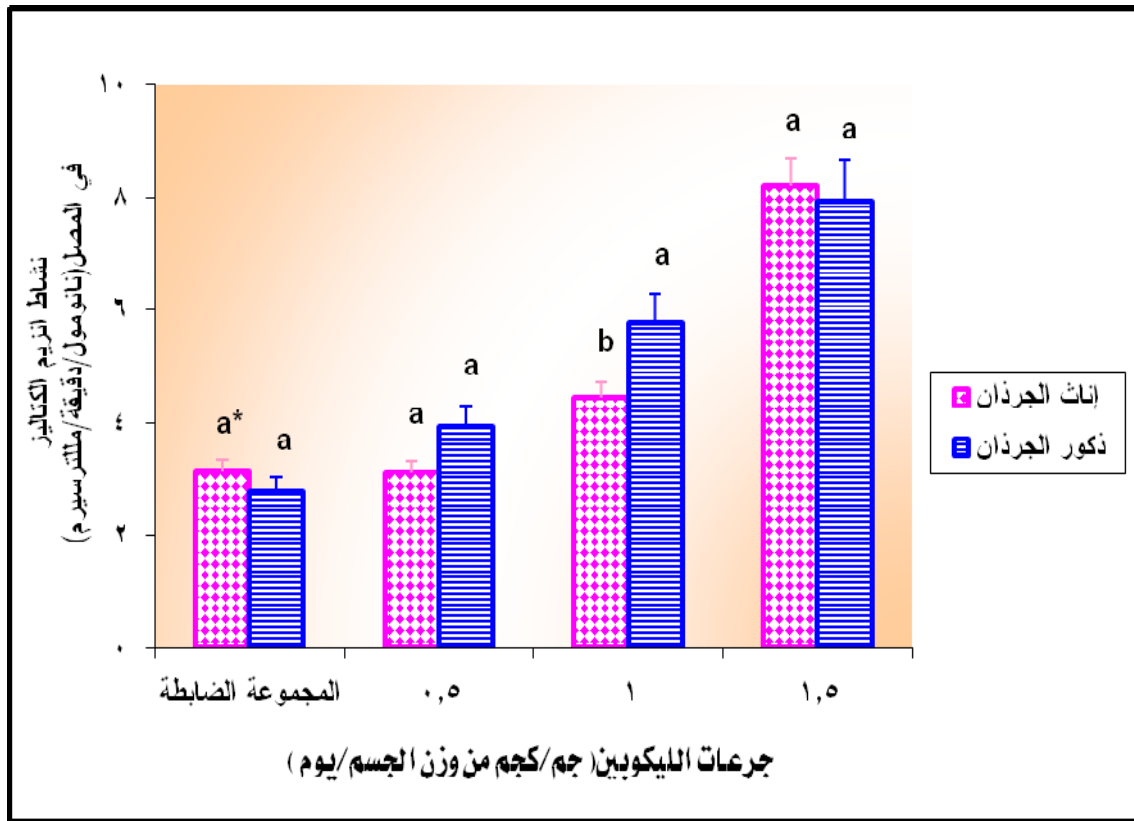
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شكل (٧). مقارنة لتأثير الليكوبين على نشاط إنزيم الكتاليز في المصل بين إناث وذكور الجرذان.



*(P<0.05)

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(Moreira et al., 2005)

(Karahana et al., 2005)

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(Gupta et al., 2003)

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(P<0.001

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(Bhuvaneswari et al., 2001)

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(P<0.05)

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(El-Habit et al., 2000)

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(Vaisman et al., 2006)

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(P<0.001)
 (Astley and Elliott, . / 2005)
 (P<0.001)

(Lee et al., 2000)

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Effect of Lycopene Extracted from Tomatoes on Antioxidative Enzymes in Rats

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ABSTRACT: The aim of this study was the extraction of lycopene from local tomatoes cultivated in Saudi Arabia and the evaluation of its effect in antioxidative enzymes. Forty eight (24 males and 24 females) Wister albino rats (100 ± 10 g) were used in this study. Different orally administered lycopene, extracted from tomatoes, at doses (0.5, 1.0 and 1.5 g/kg body weight/day) for eight weeks were given to rats.

Results of the study showed positive and strong correlation between lycopene and the activity of serum catalase enzyme (CAT) of rats ($r^2=0.819$ and 0.784 for males and females, respectively). The highest dose of lycopene for females and the doses of 1.0 and 1.5 g lycopene/kg BW for males increased significantly CAT activity in serum compared to the control group. CAT activity significantly increased in males than females at dose of 1.0 g lycopene/kg BW. Activity of plasma glutathione peroxidase (GSH-Px) of rats followed the same trend in both sexes at the highest dose of lycopene. However, gender had no effect in the activity of this enzyme. Correlation between GSH-Px and lycopene was positive but intermediate ($r^2=0.615$ and 0.585 for males and females, respectively). Despite the increase in super oxides dismutase (SOD) activity in serum of males at the highest dose of lycopene compared to the control group, and its higher activity in the serum of males than females, the correlation between lycopene and SOD was weak ($r^2=0.239$ and 0.286 for males and females, respectively).

The results of this study demonstrated the role of lycopene in the reduction of oxidative stress through its role in the activation of antioxidative enzymes.