

() ,

***Acrosternum heegeri* Fieber (Hemiptera: Pentatomidae)**

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(// : // :)

Acrosternum heegeri

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pH (m m)
 ± / / ± / / ± / (m m)
 / ± / pH . / ± /
 pH
 Z-Phe-Arg-pNA pH
 Z-Arg-Arg-pNA

(/) DTT Z-Phe-Arg-pNA (/) DTT
 E-64 . Z-Arg-Arg-pNA

pH
 pH
 pH

***Acrosternum heegeri* :**

.

.(Abrishami, 1995)

(Sharma *et al.* 2000)

(Hori, 1970; Ferreira *et al.*,

.1999)

(Hashemi Rad, 1999,

.2004)

Pentatomidae

Lygaeidae

Acrosternum *Brachynema*

(*Lygaeus*

(*Apodiphus amygdali*)

(Hashemi Rad, 1999)

panderus)

(Franco *et al.*, 2002)

(*Acrosternum hegeeri*)

()

(Lawrence & Koudal,

.2002)

)

(

(Talebi Jahromi *et al.*, 2001)

(Talebi Jahromi, 2006)

(*Peganum harmala*)

(*Salsola kali*)¹

() ()

... :

) (/ / pH))

/ pH) (/ / pH

(/ pH) (/

) (/ / pH) (Wagner, 1959)

pH) (/ pH

(Bignell & Anderson, 1980) (/ :)

± (:

±

pH

(1993) Cohen

pH

(Cohen, 1993; Elpidina *et al.*, 2001)

(pH)

(Folin & Ciocalteu,

1927)

Z-Arg-Arg-pNA
Z-Phe-Arg-pNA

pH

pH

pH

m₄ m₃ m₂ m₁

(/ pH)

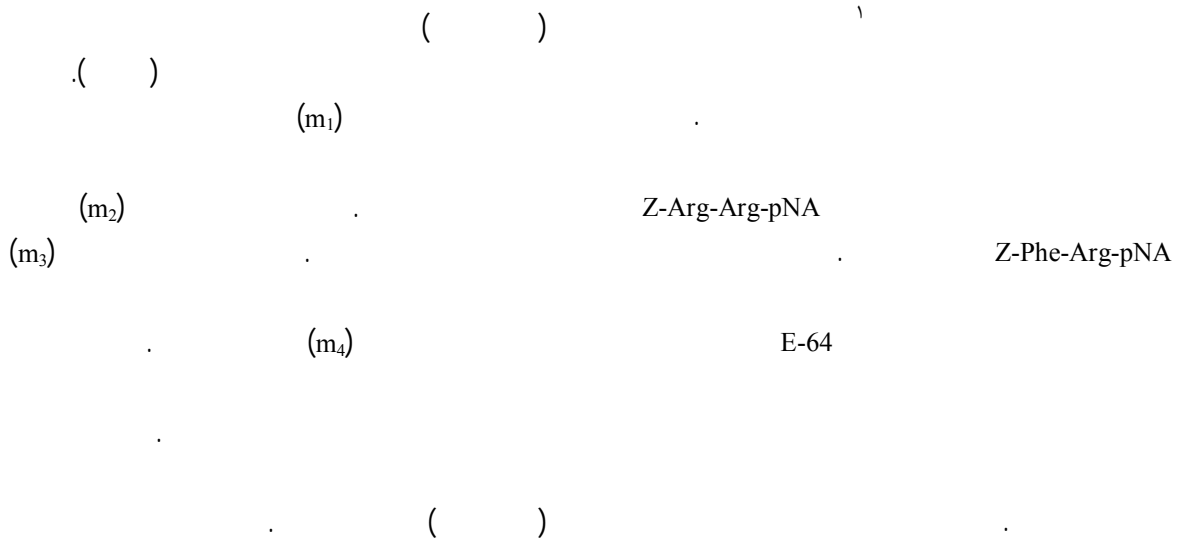
-
1. Total proteolytic activity
 2. Carbobenzoxy-L-arginine-L-arginine-*p*-nitroanilide
 3. Carbobenzoxy-L-phenylalanin-L-arginine-*p*-nitroanilide

Sigmaplot STATGRAPHICS

pH

(Elx808

روده میانی



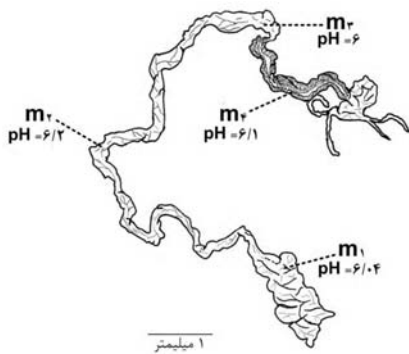
(2005) Gillot .(Kazzazi, 2006)

Blissus leucopterus

(Baker, 1991)

Piezosternum sp.

.(Chapman, 1998)



pH

pH

(*Acrosternum heegeri*)

1. Dithiothreitol

m_1 m_2 m_3 m_4 m_5 m_6 m_7 m_8 m_9 m_{10} m_{11} m_{12} m_{13} m_{14} m_{15} m_{16} m_{17} m_{18} m_{19} m_{20} m_{21} m_{22} m_{23} m_{24} m_{25} m_{26} m_{27} m_{28} m_{29} m_{30} m_{31} m_{32} m_{33} m_{34} m_{35} m_{36} m_{37} m_{38} m_{39} m_{40} m_{41} m_{42} m_{43} m_{44} m_{45} m_{46} m_{47} m_{48} m_{49} m_{50}

(Terra & Ferreira, 1994)

Cimicoidea Reduvioidea
 (Houseman & Down, 1979; Terra & Ferreira, 1994)
 Pentatomoidea

Dysdercus peruvianus
 m_2 m_1 m_3
 (Silva et al., 1995, 2001)

pH
 (pH)
 pH
 (pH)
 pH
 (pH)
 pH
 (Terra & Ferreira, 1994)

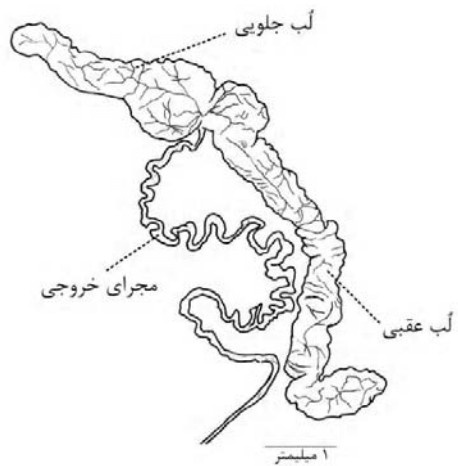
Mills

(Ameen & Abedin, 1975)

Oncopeltus fasciatus

Lygus rugulipennis (Chapman, 1998)

(Laurema, 1985)

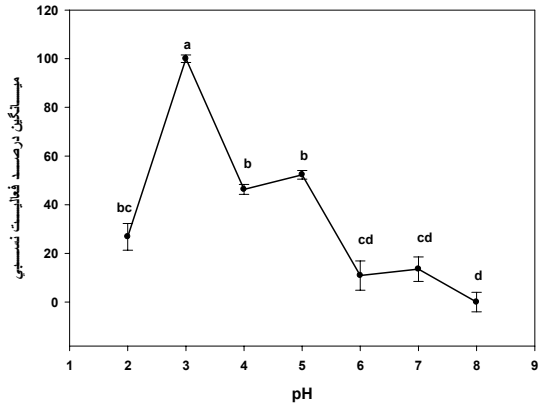


(*Acrosternum heegeri*)

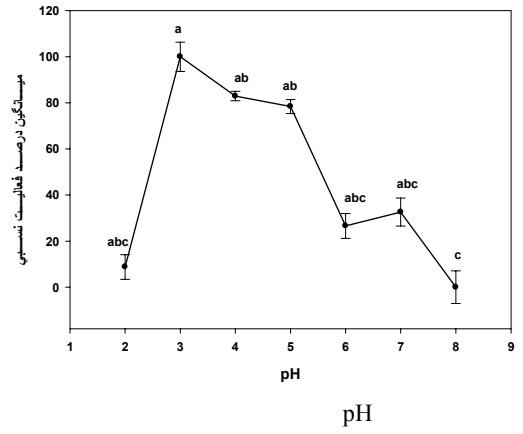
()

(1988)

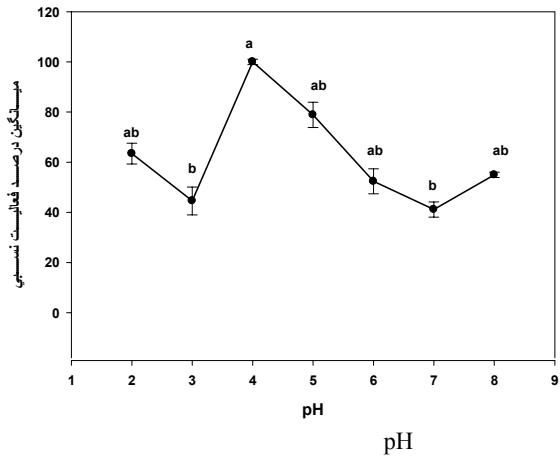
Sphaerodema rustium



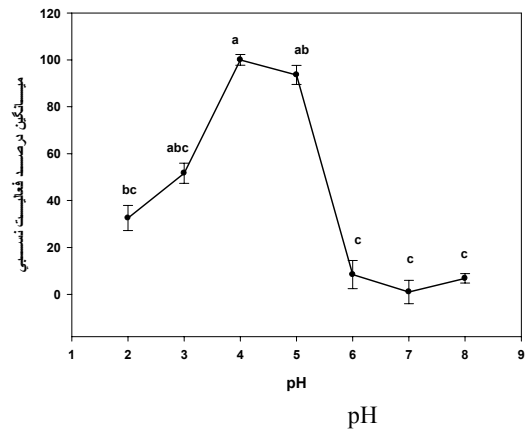
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Z-Phe-Arg-pNA

(/)

Z-Arg-Arg-pNA

Z-Phe- Z-Arg-Arg pNA

()

Arg-pNA

... :
 (/)
 ($p < /$)
 DTT Z-Arg- Arg- pNA
) Z-Phe-Arg-pNA
 () Z-Arg-Arg-pNA
 Z-Arg- () Z-Phe-Arg-pNA
 () Arg-pNA
 (DTT)

Z-Phe-Arg-pNA
 ()

/ DTT

DTT

Z-Arg-Arg-pNA

()

/ DTT

Z-Phe-Arg-MCA Z-Arg-Arg-MCA

Callosobruchus maculatus

Zabrotes subfasciatus

C. maculatus

(Silva & Terra,

Z. subfasciatus

.2001)

Adalia bipunctata

Z-Phe-Arg-pNA

.(Walker *et al.*, 1998)

(Wilhite *et al.*,

.2000)

(Thie & Houseman, 1990)

Rodnius prolixus

.(Houseman & Down, 1979)

Diabrotica virgifera

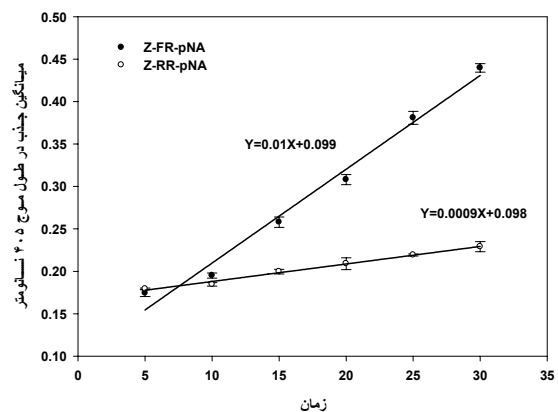
(Koiwa *et al.*,

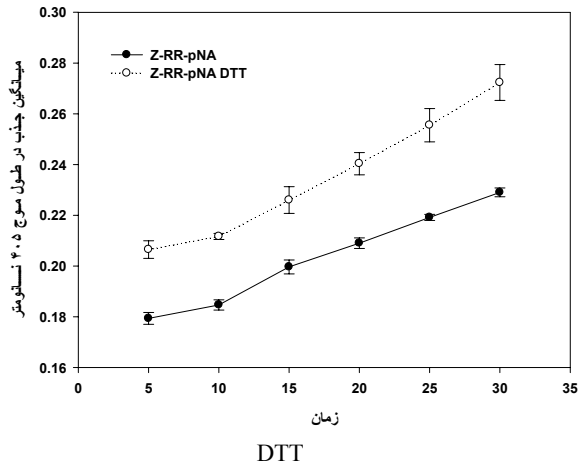
Dysdercus peruvianus .2000)

.(Silva *et al.*, 1995)

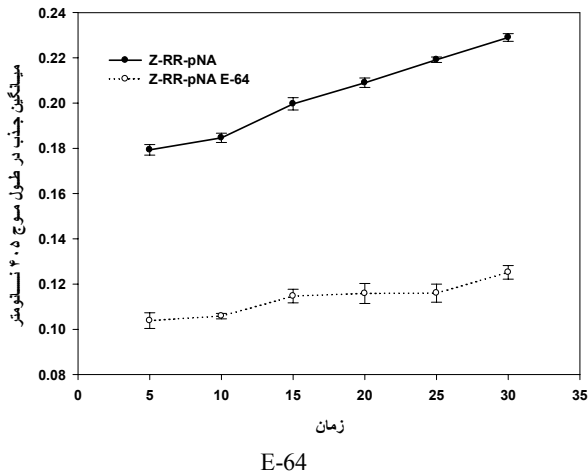
()

.(Wilhite *et al.*, 2000)

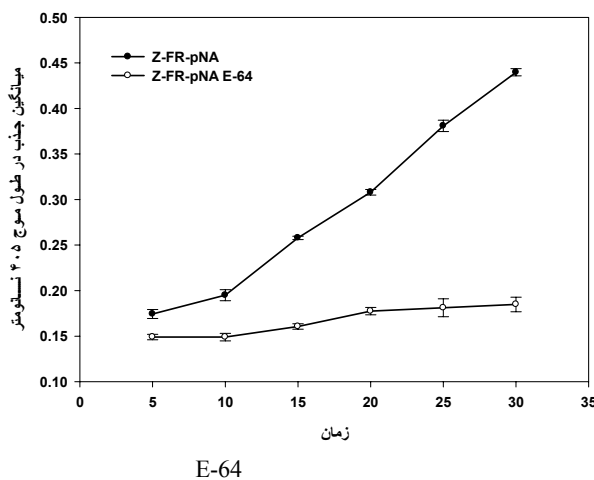




Z-Arg-Arg-pNA



Z-Arg-Arg-pNA



E-64

Z-Phe-Arg-pNA

E-64
)
(
(
E-64
()
Z-Phe-Arg-pNA
Z-Arg-Arg-pNA
E-64
)
Z-Arg-Arg-pNA
(
E-64
Lygus lineolaris
(Zhu et al., 2003)

Perillus bioculatus

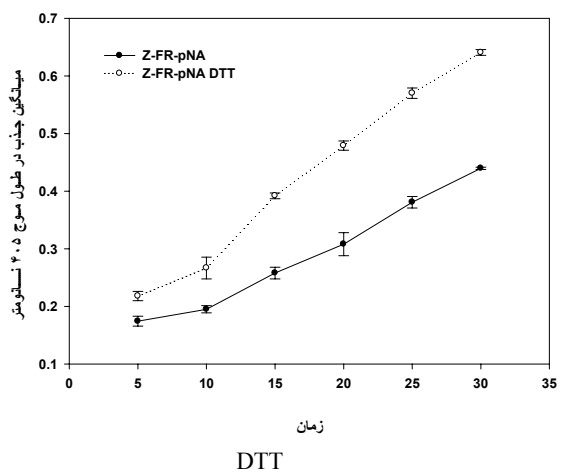
pH
E-64

(Overny et al., 1998)

Perillus

E-64
(Novillo et al.,

1997)

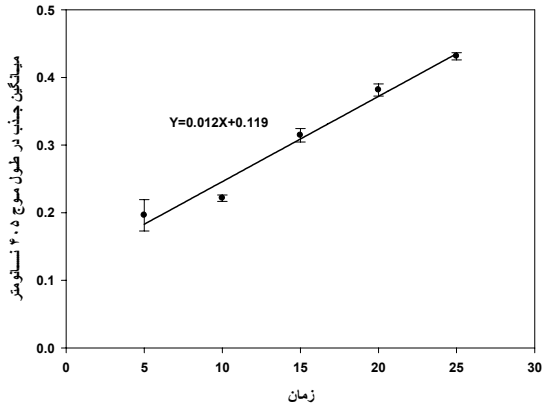


Z-Phe-Arg-pNA

pH (Miles, 1969)

Eurygaster integriceps

(Kazzazi, 2006)



pH

pH

pH

pH

pH

(Dixon & Webb, 1979)

pH

pH

pH

pH

pH

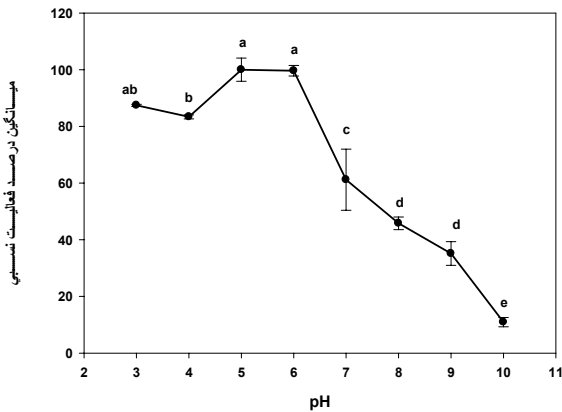
pH

pH

(Hori, 1971; Zeng & Cohen, 2000;

pH Swart *et al.*, 2006)

Pneropsophus aequinoctialis



pH

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