

(Crocus Sativus)

*** *** ** *

*
**

// :
// :

×	mg/l	(Crocus sativus)	(N=)
(N=)		l-name	
		(AV node pack)	(N=) /
/ ±	FRP	/ ± / ±	() (/ ±
		/ ± / ± / ± /	(L-Name) NOS
			/ / / :

Crocus sativus

.()

.()

.()

.()

.()

(Sativus Crocus)

":

()

()

.()"

(/)

.()

()

.()

UV
% /

ODS

HPLC

.()

/

(NOS)

(iNOS)

(eNOS)

(mg/kg/IV)

.()

(mg/kg/IV)

β

.()

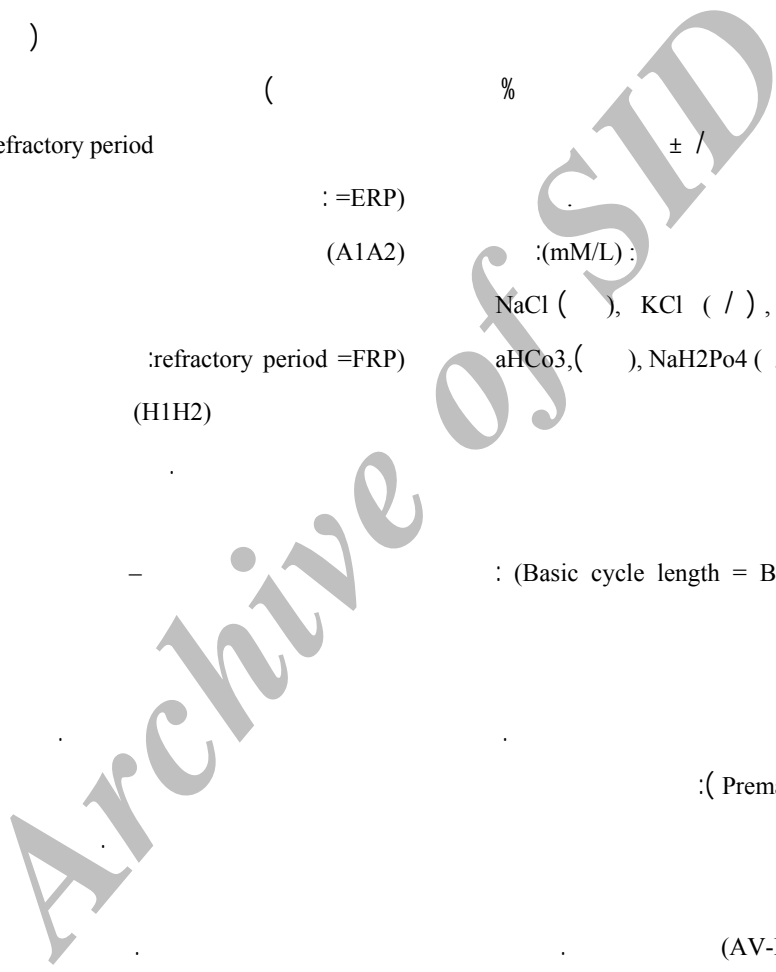
.()

NO

mRNA

.()

() A2H2
() A1A2
()
(Effective refractory period) $\pm /$ %
:=ERP) pH= / $\pm /$
(A1A2) (mM/L):
(Functional) NaCl (), KCl (/), CaCl2(), MgCl2(),
:refractory period =FRP) aHCo3,(), NaH2Po4 (/), Dextrose (/)
(H1H2)
: (Basic cycle length = BCL)
:(Premature cycle)
/ \pm (AV-ERP) (BCL)
: (Wenckbach cycle length)
× mg/l :(Recovery)
() (BCL)



mg/l)

(×

× mg/l .(N=)

/ ±)FRP (/ ± / ±) WBCL × mg/l

(/ ± (L-Name) NOS

.() .(N=)

L-Name (/)

.(N=)

.() WBCL ±

/

spss

Wilcoxon Signed Ranks

Marquardt Statgraph

(× mg/l) mg/l ×

% / -

.() /

(AHmin)

.(P< /)

.() (AHmax)

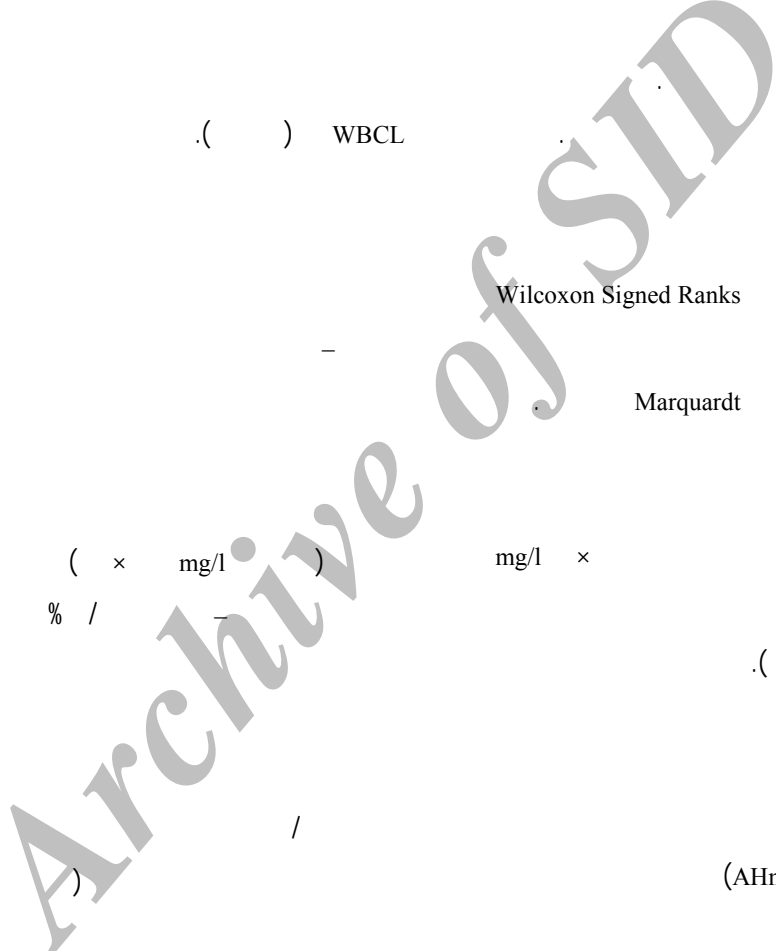
.(P> /)

/ ± / / ± / (Mono Exponential)

× mg/l (P> /) (τ)

/ ± / .()

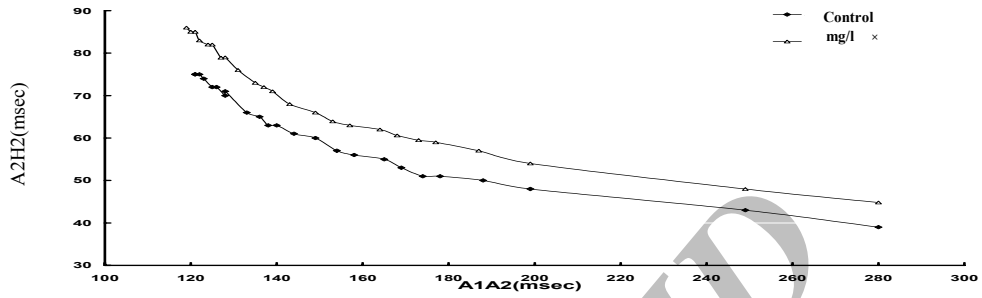
L-Name .() / ±



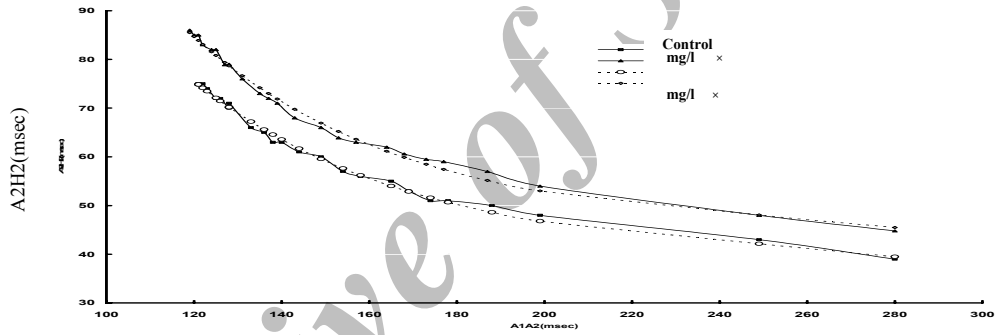
L-Name

/ ± / ± /

()

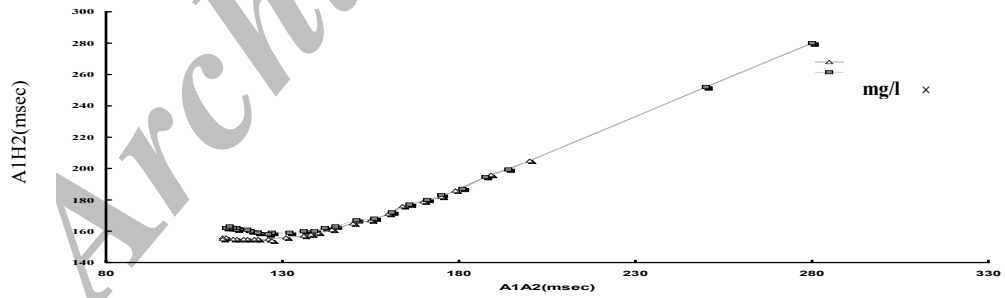


mg/l x

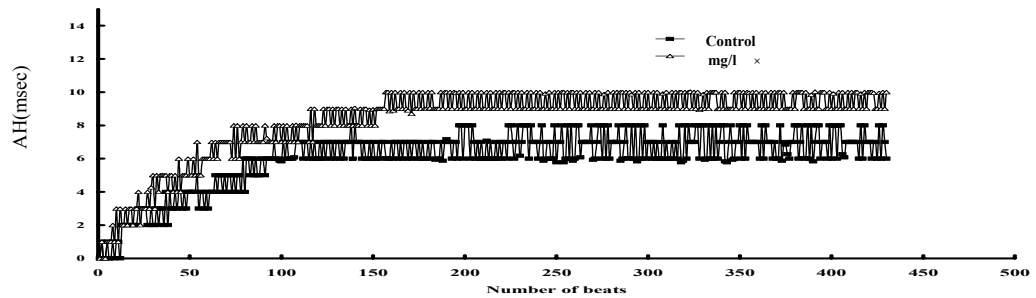


Marquardt

regression fitting nonlinear



mg/l x



(AH)

mg/l x

*P<0.05, **P<0.01

WBCL	ERP	ERP	AH		
/ ±	/ ±	/ ±	/ ±		
/ ± **	/ ± *	/ ±	/ ± **		mg/l ×
/ ±	/ ±	/ ±	±		
±	/ ±	/ ±	/ ±		mg/l ×
					75μ Molar L-name
					μ Molar /
/	/		/		μ Molar / Δ

:FRP :WBCL :ERP
mg/l × :

*P<0.05, **P<0.01

τ rec	AH max	AH min		
/ ± /	/ ± /	/ ± /		
/ ± /	/ ±	/ ± / *		mg/l / ×

:AH max :AH min
:τ rec

AH, WBCL, ERP, FRP

L-Name .

L-Name

(n=)

Mean±SE

FRP (msec)	ERP (msec)	WBCL (msec)	AH min(msec)	AHmax (msec)	AH(msec)	
± /	/ ± /	± /	/ ± /	/ ±	/ ± /	
± /	/ ± /	/ ± /	/ ± /	/ ± /	/ ± /	l-Name (100Mm)
/	/	/	/	/	/	P

=AHmin

=AHmax

=AH

()

=ERP WBCL

:

=WBCL

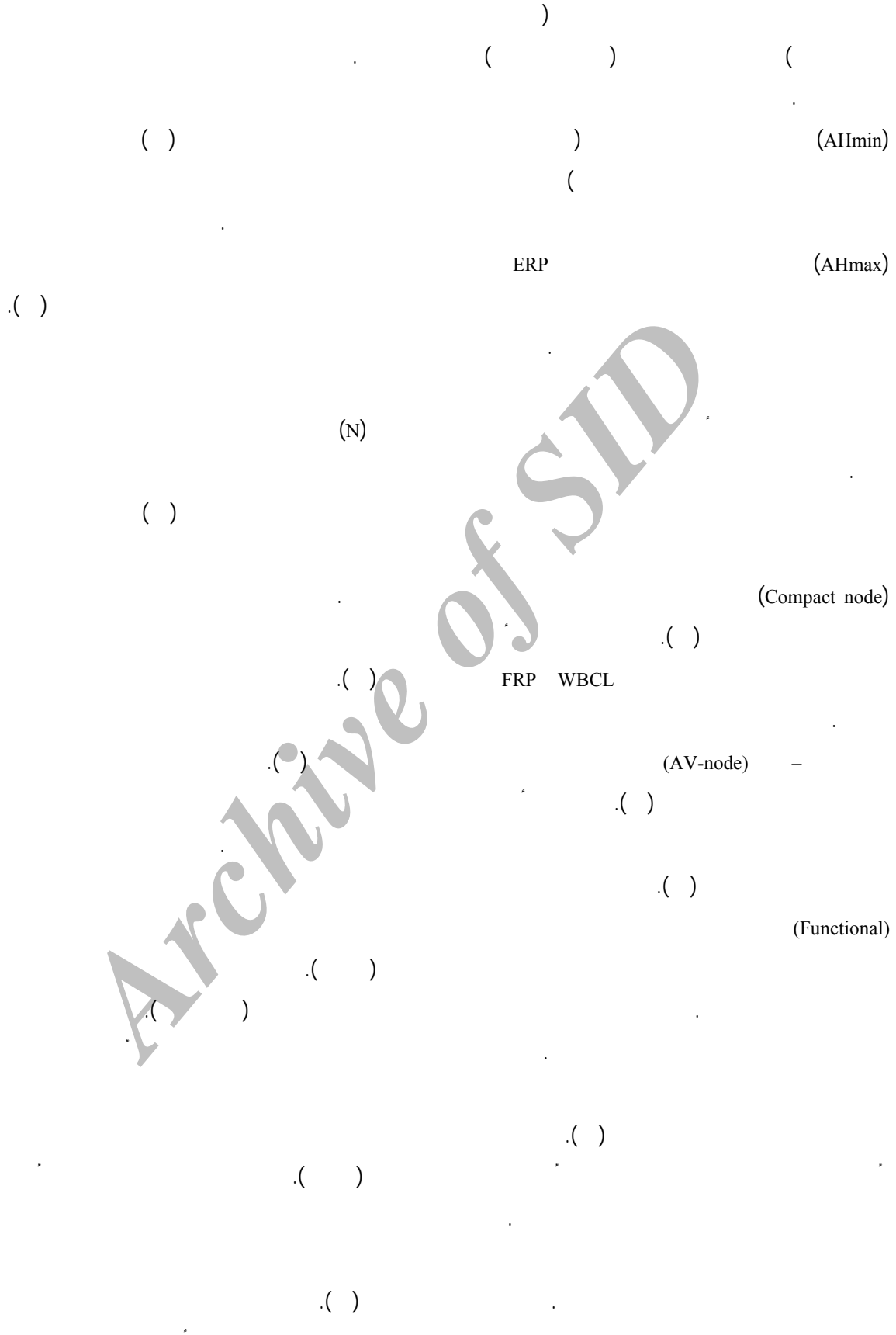
()

=FRP

(p<0.05)

()

/ / /



(L-Name) NOS

()

()

NO

NO

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(Crocus sativus)

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The Role of Nitric Oxide Syntase Enzyme Inhibitor on Antiarrhythmic Effects of Crocus Sativus on Isolated Rabbit Atrioventricular Node

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Abstract

Introduction: Nitric oxide, directly or indirectly, can modulate electrophysiological parameters of the heart. On the other hand Nitric Oxide Syntase enzymes were founded in the Av-node. Various studies pointed to Anti-ischemic and Hypotensive effects of the Crocus Sativus(Saffron).

Objective: To determine the effects of Hydroalcoholic extract of Saffron on the tonic and functional properties of Atrioventricular Node and the role of Nitric Oxide in the mechanism of Saffron.

Materials and Methods: In this experimental study, We used isolated Newlands male rabbits with the method of isolated perfused AV-node in the suitable experimental condition, in three separate groups, in the first group (N=20), we assessed effect of hydroalcoholic extract of Crocus Sativus(19×10^{-2} mg/l) in order to survey its Electrophysiological effects on AV-node (before and after). In the second group (N=6) Saffron in presence of L-Name ($75 \mu\text{mol}$) and in the third group (N=6) Verapamil ($0/1 \mu\text{mol}$) were examined. The primary characteristics are including: Nodal Conduction Time (AVCT), Wenckebach Time (WBCL), Effective & Functional Refractory Period(ERP&FRP).All changes in the variables were detected on line by A/D board and Av node pack software.

Results: The results have shown an inhibitory effects of Crocus Sativus on basic (AVCT, WBCL, FRP) and Functional Electrophysiological Parameters of AV -node including an increasing AVCT (32.4 ± 4 to 41.7 ± 4 msec) and FRP (157.6 ± 3 to 163.7 ± 4 msec). Also we had significant increased in the amount of facilitation and magnitude of fatigue (5.9 ± 0.3 to 11.1 ± 1 msec). NOS inhibitor (L-Name) has preventing effect on depressant effect of Crocus Sativus on AVCT and FRP.

Conclusion: The hydroalcoholic extract of Crocus Sativus can use as Anti -Arrhythmic drug by increasing (AVCT) and (FRP). A part of its effects mediated by Nitric pathway.

Key words: Arrhythmia/ Nitric Oxide/ Saffron/ AtrioVentricular Node.