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F_1 .

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(   )

SCA   GCA   .

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.(Singh & Chaudhary, 1985)   .

Hosseini et al. .   .

(2002)

.(Can et al., 1997)

E-mail: n.bagheri@umz.ac.ir   :   :   *

(1998) Azad et al.

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(2002) Sadeghi et al.

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(1998) Kiyanosh & Abdemishani

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(2004) Bagheri et al.

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IR58 ×

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(1991) Hoang & Long

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F_2 (1991) Bui & Tuan

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.   (Scshu, 1988)

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(/)   Hayman (1956b) Griffing

.   (1956a, 1956b) Griffing . (1954a)

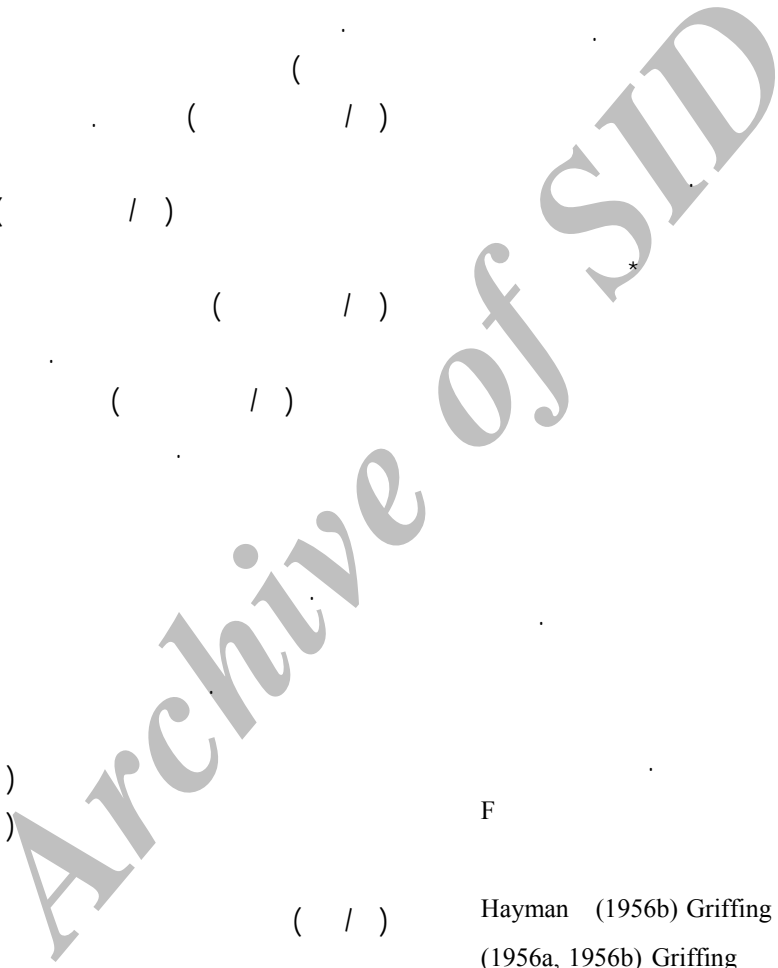(/)   GCA .

(/)   .   SCA

/)   .

(Hayman . t

.   (1954a, 1954b)

(/) $H_0 : b = 1$

.   .

(gr)	(gr)	(mm)	(mm)				(cm)	(mm)	(cm)	(cm)		
/ c	/ a	/ b	/ b	/ d	/ c	/ b	/ a	/ c	/ b	/ c	/ d
/ c	/ d	/ c	/ a	/ c	/ b	/ b	/ a	/ c	/ a	/ b	/ b
/ c	/ b	/ a	/ b	/ b	/ a	/ b	/ a	/ a	/ b	/ c	/ c
/ b	/ d	/ c	/ a	/ c	/ d	/ b	/ b	/ c	/ c	/ a	/ d
/ a	/ c	/ b	/ b	/ a	/ b	/ a	/ c	/ b	/ c	/ d	/ a

$(P \leq /)$

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g_i .

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GCA

SCA

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g_i

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(Hosseini et al., 2002; Kiyanosh, 2000; Sadeghi et al.,2002)

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(g_i)

g_i .

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(g_i)

g_i .

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g_i

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g_i g_i

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							MS					
(gr)	(gr)	(mm)	(mm)				(cm)	(mm)	(cm)	(cm)		
/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	
/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	/ **	GCA
/ **	/ **	/ ns	/ **	/ **	/ **	/ ns	/ **	/ **	/ **	/ **	/ **	SCA
/ ns	/ ns	/	/ ns	/ ns	/ ns	/ ns	/ ns	/ ns	/ **	/ ns	/ ns	
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/	/	/	/	/	/	/	/	/	/	/	/	%CV

: ns . : ** *

(g_i)

								(cm)	(mm)	(cm)	(cm)	
(gr)	(gr)	(mm)	(mm)									
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/ **	/ **	/ **	/ **	/ **	/ ns	/ ns	/ ns	/ **	/ *	/ **	/ **	
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/ ns	/ **	/ **	/ *	/ **	/ **	/ *	/ **	/ *	/ *	/ **	/ **	
/ **	/ **	/ ns	/ *	/ **	/ ns	/ **	/ **	/ **	/ *	/ **	/ **	
/	/	/	/	/	/	/	/	/	/	/	/	SE (g_i)

: ns . : ** *

Griffing)

(1956b) (

$$\delta_D^2 = \delta_{SCA}^2, \delta_A^2 = 2\delta_{gca}^2$$
$$h^2 = \frac{\delta_A^2}{\delta_P^2}$$

.

. g_i

$\dfrac{MS(GCA)}{MS(SCA)}$ (S_{ij})

SCA

$\dfrac{MS(GCA)}{MS(SCA)}$

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S_{ij} .

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S_{ij} ×

(2000) Kiyanosh .

Mohammad- (1998) Kiyanosh & Abdemishani ×

(1993) Gravois & McNew (1998) salehi et al.

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H₂ H₁ F D

(S_{ij})

(gr)	(gr)	(mm)	(mm)			(cm)	(mm)	(cm)	(cm)			
/ **	/ **	/ *	/ **	/ *	/ *	/ **	/ *	/ **	/ ns	/ **		×
/ ns	/ **	/ ns	/ *	/ **	/ *	/ ns	/ **	/ ns	/ *	/ **		×
/ ns	/ **	/ *	/ ns	/ **	/ ns	/ **	/ **	/ ns	/ **	/ **		×
/ **	/ *	/ **	/ ns	/ **	/ ns	/ **	/ **	/ ns	/ **	/ **		×
/ *	/ **	/ **	/ *	/ ns	/ ns	/ **	/ ns	/ *	/ *	/ **		×
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/ *	/ **	/ ns	/ **	/ ns	/ **	/ **	/ *	/ ns	/ **	/ **	×	
/ **	/ **	/ *	/ **	/ **	/ **	/ **	/ ns	/ *	/ *	/ *	×	
/ **	/ ns	/ **	/ **	/ **	/ ns	/ *	/ **	/ **	/ **	/ *	×	
/	/	/	/	/	/	/	/	/	/	/		SE (S_{ij})

: ** *   . ns :

SCA   GCA

( )					(h_N^2)	(h_B^2)			$\dfrac{MS(GCA)}{MS(SCA)}$
↑		×	↓	↑	/	/	/	/	/ ns
↓		×							
↑		×		↑	/	/	/	/	/ **
↓		×		↓					
↑		×		↑	/	/	/	/	/ ns
↓		×		↓					
↑		×		↑	/	/	/	/	/ *
↓		×		↓					
		×			/	/	/	/	/ ns
		×			/	/	/	/	/ **
		×			/	/	/	/	/ **
		×			/	/	/	/	/ *
↑		×	↓	↑	/	/	/	/	/ ns
↓		×							
	↑		×		/	/	/	/	/ ns
↓		×	↓	↑					
		×			/	/	/	/	/ ns
		×			/	/	/	/	/ ns

: ** *   . ns :

…   :

F

$H_0 : b = 1$

(D) .

$(H_2 \quad H_1)$

.

F .

.( ) .

) $\frac{H_2}{4H_1}$ $\left(\sqrt{\dfrac{H1}{D}}\right)$

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U=V= /   /

/ $\dfrac{H_2}{4H_1}$.

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$$\left[\frac{\sqrt{(4DH1)+F}}{\sqrt{(4DH1)-F}}\right]$$

.( )

(gr)	(gr)	(mm)				(cm)	(mm)	(cm)	(cm)		
/	/	/	/	/	/	/	/	/	/	/	D
/	/	/	/	/	/	/	/	/	/	ns	F
/	/	/	/	/	/	/	/	/	/	/	H_1
/	/	/	/	/	/	/	/	/	/	/	H_2
/	/	/	/	/	/	/	/	/	/	ns	$\hat{h}_2$
/	/	/	/	/	/	/	/	/	/	/	Error
/	/	/	/	/	/	/	/	/	/	/	$\sqrt{\dfrac{H_1}{D}}$
/	/	/	/	/	/	/	/	/	/	/	$\dfrac{H_2}{4H_1}$
/	/	/	/	/	/	/	/	/	/	/	$\left[\dfrac{\sqrt{(4DH_1)+F}}{\sqrt{(4DH_1)-F}}\right]$

Wr

(   )   /

WR B=1.00 +/- 0.07*NOT SIG DIFF THAN 1
INTERCEPT= 6.684

(   )

(   )

Wr

(   )   /

WR B=0.28 +/- 0.26*NOT SIG DIFF THAN 1
INTERCEPT= -3.283

(   )

WR B=1.06 +/- 0.42*NOT SIG DIFF THAN 1
INTERCEPT=-162.038

Wr

(   )   /

Wr   Wr
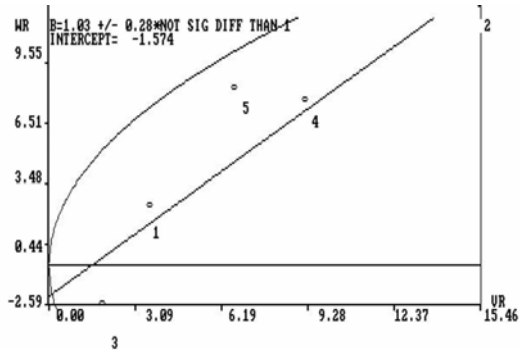(   )   /   (   )

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GCA

SCA

.   F$_1$

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.   Wr
                                                                   (   )
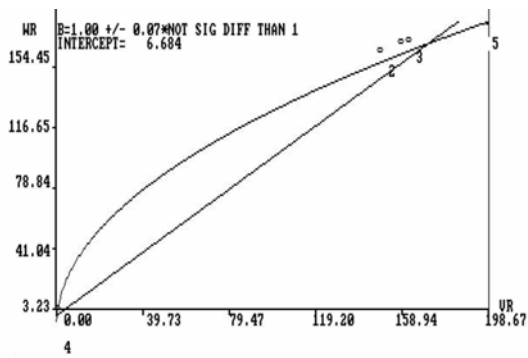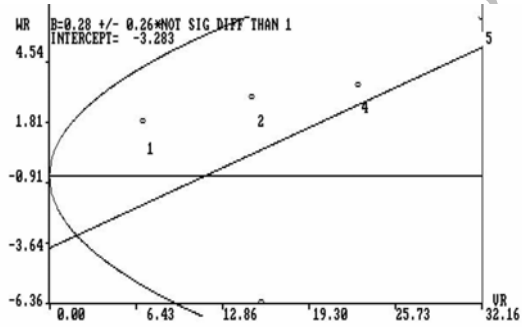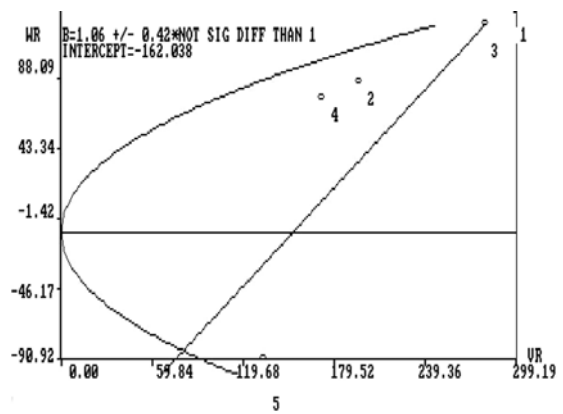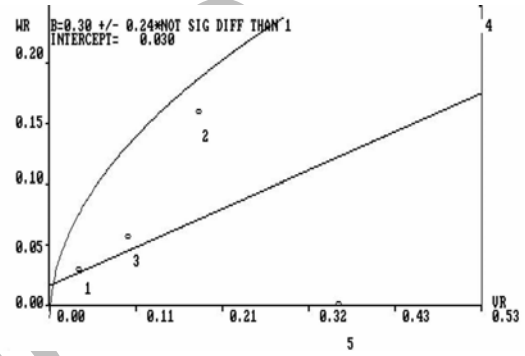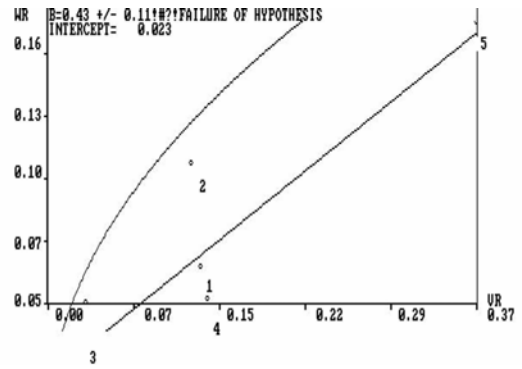
.(Gravois & McNew, 1993)

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GCA $(\overline{x} = \quad / \quad)$

(GCA   )

GCA   .   .

(   )

.(   )   .

SCA $(h_n^2 = \quad \%)$

×   ×   (   )

×   ×   ×   ×

×   ×   ×

.   SCA

.(   )

SCA

.   .
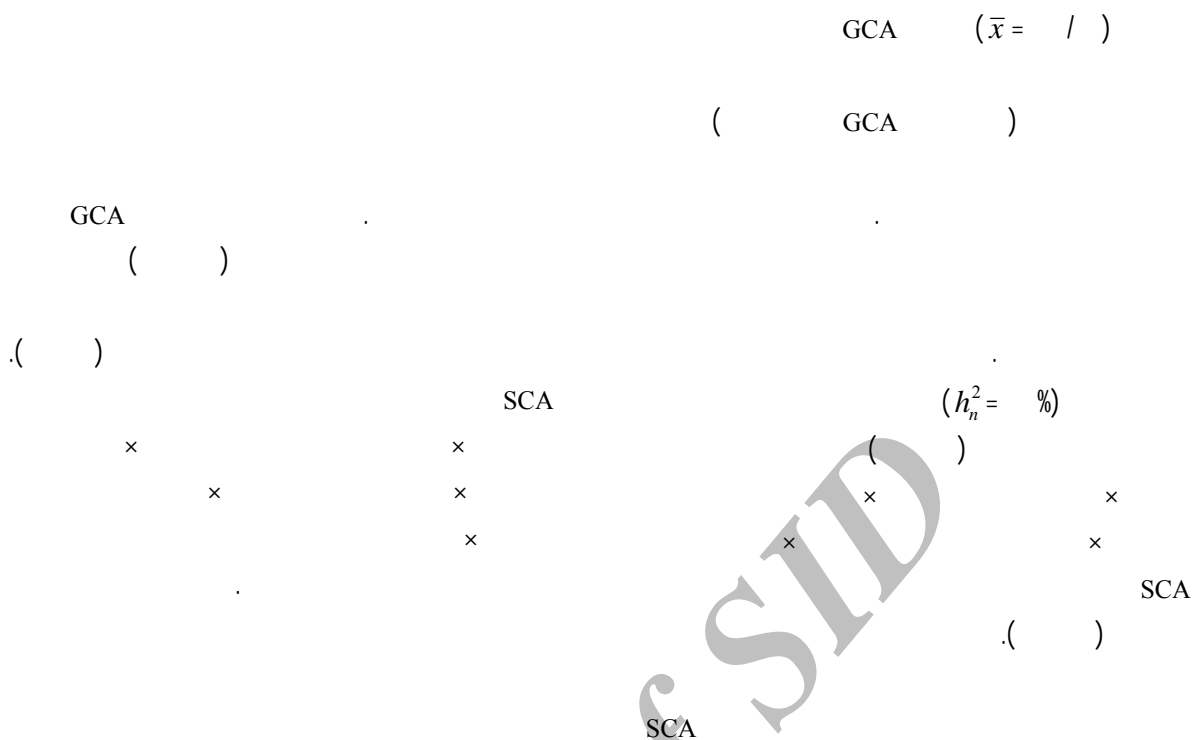
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