

Vitis vinifera

IBA

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()	/	2000	1000	IBA
/					"Alphonse Lavalley"
	12	/			
					IBA
3			%100		
2000	3		IBA /	1000	
					IBA /
.	11,72	2,27	15,77	8,06	20,10
.					-:

The Interaction Effect Among the Existing Eyes Numbers of the Cuttings Grape and Treatment by IBA Powder in the Improvement of the Root Growth

Ayad H. Esmaeel Al-Allaf

Department of Horticulture and Land Scape Design

College of Agriculture and Forestry

Mosul University

ABSTRACT

This research was conducted in the plastic houses at Horticulture Dep. College of Agriculture and Forestry Mosul University, Iraq, to study the effect of three concentrations of auxin IBA 0, 1000 and 2000 mg/L and number of eyes on cuttings with two or three eyes on rooting and growth parameters of hardwood Grape cuttings. After Twelve weeks from culture date cuttings examined for rooting and vegetative growth. Cuttings with three eyes significantly show increase in all parameters as compared with cuttings with two eyes (rooting percentage, root number and length, fresh and dry root weight, new shoots, new leaves, number and length of new shoots, fresh and dry vegetative weight parameters, at the same time the two concentrations of auxin IBA 1000 and 2000 mg/L increased significantly all rooting and vegetative parameters, except the percentage of rooting and number of new shoots. However the interaction treatment (cutting with three eyes + 1000 mg/L IBA) gave a 100% of rooting percentage, but the highest average of (root number and length , new leaves, number and length of new shoots) resulted from cutting with three eyes treated with 2000 mg/L IBA value which reached 20.10, 8.06cm, 15.77 , 2.27 and 11.72cm respectively .

Key words: Percentage rooting, Hardwood cuttings, IBA , Number of eyes , Grape

(Bal, 2005)

(Kawai *et al.*, 2004)

IBA

Villa (Poudel *et al.*, 2009 Keeley *et al.*, 2004)

.....

IBA / 1000 Riparia de Traviú (2003)
 / 1500 500
 IBA (2004) Rawat
 Perlette Thompson seedless / 1500
 () Thompson seedless Perlette
 IBA / 1000 (2005) Botelho
 (2005) Bruno Luiz VR 043-43
 Topsail Magnolia
 (2008) Satisha IBA / 1000
 St.George IBA / 1000
 . 110R Dog ridge
 Alphonse Lavalleẽ
 . IBA (3-2)
 / /
 6 2009/2/1 .2009 -
 15 3 10
 IBA / 2000 1000 IBA
 / 50 (1988)%25
 37,5 12,5
 50 / 1000
 100
 . / 2000
 0.5×1×3 IBA
 7 5
 12 2 4-3

()

()

()

()

4-2

°72

(CRD) Complete Randomized Design

3

IBA

3-2

6

10

.(1990

) %5

:

IBA

3

(1)

)

3

.(

(1975) Kester Hartmann

(1988)

Hartmann Fadle

Old Hom

(1967)

IBA

(1975) Kester Hartmann

(1996) Kawai (Kawai *et al.*,1991)

. Muscat bailey A

.....

(1)

IBA / 2000 1000

IBA / 2000 1000

/ 2000 1000

IBA

(Karakurt *et al.*, 2009)

IBA

Hartmann)

(De Andres *et al.*, 2005)

(*et al.*, 1997

(2008)

Satisha

IBA / 1000

IBA

Polyphenol Oxidase

.(1991)

/ 2000 1000

IBA

IBA

(Machado *et al.* , 2005)

Thomas

. VR 043-43

IAA

(2004) Schiefelbein

(2005)

Botelho

Arka neelamani

Kadainou R-1

(2009)

Poudel

VR 043-43

IBA / 1000

IBA

: 1

Alphonse Lavalloë

- -1

()	()	()		%	
1 ,04	5 ,97	6 ,54	13 ,93	76 ,66	
1 ,91	10 ,95	7 ,32	17 ,52	94 ,44	3

(¹⁻ .) IBA

- -1

1 ,07	5 ,98	6 ,11	13 ,09	81 ,66	
1 ,76	9 ,12	7 ,16	16 ,64	88 ,33	1000
1 ,59	10 ,28	7 ,51	17 ,45	86 ,66	2000

*

% 5

IBA

) 3 (2)

(

3

(1)

(1991)

.(Nanda and Anand,1970)

IBA / 2000 1000

(2)

)

(

.....

IBA / 2000
 . / 1000 9,57

IBA (1)

(Sivaci and Yalcin , 2007)

500 (2004) Sabir .(1991)
 IBA /

. Rupestris du Lot

IBA : 2

Alphonse Lavalloë

- -1

()	()	()			
3 ,09	16 ,50	7 ,32	1 ,33	11 ,26	
4 ,39	19 ,50	9 ,80	2 ,07	14 ,65	3

(¹⁻ .) IBA - -1

3 ,06	16 ,51	7 ,63	1 ,61	12 ,07	
3 ,85	18 ,36	8 ,49	1 ,68	13 ,20	1000
4 ,30	19 ,14	9 ,57	1 ,81	13 ,59	2000

*

.% 5

IBA

IBA / 1000 3 (3)

3 %100

%96,66 / 2000

/ 3

IBA / 2000 1000 3

.()

.IBA / 2000 3

(IBA)

. Delaware

(1980)

Nakano

IBA : 3

Alphonse Lavalleë

()	()	()			IBA (¹⁻ .)	
0 ,90	5 ,23	6 ,03	12 ,41	76 ,66		
1 ,34	6 ,38	6 ,62	14 ,59	76 ,66	1000	
0 ,89	6 ,30	6 ,97	14 ,80	76 ,66	2000	
1 ,25	6 ,72	6 ,20	13 ,78	86,66		
2 ,18	11 ,87	7 ,71	18 ,70	100,00	1000	3
2 ,30	14 ,25	8 ,06	20 ,10	96 ,66	2000	

*

.%5

IBA

(4)

IBA / 2000 3

IBA / 1000 3

.()

.....

IBA

(3)

IBA

3

IBA

:4

Alphonse Lavalloë

()	()	()			IBA (¹⁻ .)	
2 ,67	15 ,68	7 ,00	1 ,43	11 ,05		
3 ,23	17 ,37	7 ,55	1 ,21	11 ,31	1000	
3 ,35	16 ,46	7 ,42	1 ,35	11 ,41	2000	
3 ,44	17 ,34	8 ,26	1 ,79	13 ,10		3
4 ,47	19 ,35	9 ,43	2 ,15	15 ,10	1000	
5,25	21 ,82	11 ,72	2 ,27	15 ,77	2000	

*

.%5

Alphonse Lavalloë

2000 1000

3

IBA /

/ " " (1990).

/ " " (1988) .

.552 .

(1988) .

" " (1991) .

- Bal, J. S. (2005). " Fruit Growing". 3rd edn. Kalyani Publishers , New Delhi. 216p.
- Botelho, R.V. ; Maia, A.J. ; Pires, E. J. ; Terra, M. M.; Schuck, E. (2005). Effect of regulators on the vegetative propagation of Vine rootstock. " 43-43" (*Vitis vinifera Rotundifolia*)*Revista Brasileira de Fruticultura* . **27**(1), 474-479.
- Botelho , R.V. ; Maia, A. J.; Pires, E. J. ; Terra, M. M.; Schuck, E. (2005). Cutting of the Vine Rootstock."43-43"(*Vitis vinifera* ×*V. Rotundifolia*) resistant to Eurhizococchu Brasiliensis. *Revista Brasileira de Fruticultura* . **27**(1), 480- 488
- De Andres, E. F.; Tenorio , J. L. ; Sanchez, F. J. ; Ayerbe, L.; Catalan, G. (2005).Vegetative Propagation of (*Colutea istria* L.) from leafy stem cutting. *Agroforestry Systems*. **63**(1), 7-14.
- Fadle, M.S. ; Hartmann , H.T. (1967). Isolation, purification and characterization of an endogenous root promoting factor obtained from basal section of Pear hardwood cutting. *Plant Physiology* .**42**(1), 541-549.
- Hartmann, H. T. ; Kester, D.E. (1975). " Plant propagation", Principles and Practices, 3rd edn . Prentice-Hall, Inc., Engle Wood Cliffs, New Jersey.
- Hartmann, H. T.; Kester , D. E. ; Davis, F.T. (1997). "Plant propagation", Principles and Practice practices, 5th edn. Prentices-Hall, Inc., Engle Wood Cliffs, New Jersey. U.S.A.
- Karakurt, H. ; Aslantas, R. ; Ozkan , G. ; Guleryuz , M. (2009). Effect of indole 3-butyric acid (IBA), Plant growth promoting rhizobacteria (PGPR) and carbohydrates on rooting of Hardwood cutting of MM106 Apple rootstock. *African. J. Agriculture Research*. **4**(2), 60-64.
- Kawai, Y. ; Ichii, T. ; Kliewer, W. (1991). Studies on rooting of Grapevine cuttings 1.effect of disbudding and phenolics on rooting . *J. Japan . Soc . Hort. Sci.* **60**(1), 146-147.

- Kawai, Y. (1996). Changes in endogenous IAA during rooting of hardwood Cuttings of Grape "Muscat bailey A" with and without a bud. *J. Japan. Soc. Hort. Sci.* **65**(1), 33-39.
- Kawai, Y. ; Ryuzoji , M. ; Hiratsuka , S. (2004)Effect of disbudding on rooting of dormant Grapevine cuttings. *Acta Horticulture.* **64**(1), 265-268.
- Keeley, K. ; Breece , J. E.; Taylor, B.H. ; Dami, I.E. (2004). Effect of high auxin concentration, cold storage, and cane position on improved rooting of *Vitis aestivalis* (Michx). Norton Cuttings. *Am. J. Enol. Vitic.* **55**(3), 265-268.
- Luiz , B. ; Bruno, B. (2005). Semi- hardwood cutting propagation of *Vitis Rotundifolia* Cv. Magnolia and Topsail . *R. bras. Agrocincia . Pelotas.* **11**(4) , 405-407.
- Machado, M.P. ; Mayer, J .S. ; Marlice , R.; Luiz, A. (2005). Indole butyric acid on rooting ability of semi- hardwood cutting of Grapevine rootstock VR 043-43(*Vitis vinifera* ×*V. Rotundifolia*). *Revista Brasileira de Fruticultura .* **27**(3), 77-80.
- Nakano, M ; Yuda, E . ; Nakagawa, S. (1980). Studies on rooting of the hardwood cuttings of Grapevine, cv. Delaware . *J. Japan . Soc. Hort . Sci .* **48**(4), 385-394.
- Nanda, K. K. ; Anand, U. K. (1970). Seasonal changes in auxin effects on rooting of stem cuttings of *Populus nigra* and its relationship with mobilization of starch. *Plant. Physiol.*, **23**, 99-107.
- Poudel, P.R.; Ryosuka, M. ; Hochioka, Y. ; Yuuki, K. (2009). Influence of indole 3-butyric acid on hardwood propagation of a new wine Grape cultivar " Kadainou R-1". *Tech. Bull. Fac. Agr. Kagawa Univ.*, **61**(1), 95-98.
- Rawat, T.S. ; Jitendra, S.; Piyush , V. (2004). Response of Grape cuttings .(*Vitis vinifera* L.) to plant growth regulators .*Scientific Horticulture.* **9**(1), 17-22.
- Sabir, A. ; Zeki, K.; Ferhan, K. ; Namik , Y. (2004). Effect of different rooting media and auxin treatment on the rooting ability of Rupestris du Lot (*Vitis rupestris*) rootstock Cuttings. *Food , Agriculture and Environment .* **2**(2), 307- 309.
- Satisha, J. ; Raveendran , P. ; Rokade , N.D. (2008). Changes in Polyphenol Oxidase activity during rooting of hardwood cutting in three Grape rootstock under Indian conditions. *S. Afr. J. Enol. Vitic.* **29**(2), 94-97.
- Sivaci, A. ; Yalcin, I. (2007). Investigation of changes in phytohormone levels depending on effects of exogenous indole butyric acid and callus formation in the stem cuttings of some apple kinds (*Malus sylvestris* Miller). *Asian. J. Plant Sic.* **6**(7), 1103-1107.
- Thomas, P. ; Schiefelbein, W. (2004). Roles of leaf in regulation of root and shoot growth from single node softwood cuttings of Grape (*Vitis vinifera*). *Ann. Appl. Biol.* **144**(1), 27-37.
- Villa, F. ; Rafael, P. ; Jorge, C. ; Tiago, G. ; Helena, C. ; Ferreira, D. (2003). Rooting of Herbaceous cuttings of the Grape rootstock Riparia de Traviú treated with auxin. *Ciênc. agrotec., Lavras.* **27**(6) , 1426-1431.