

Cucurbita pepo L.

(2)

(1)

(3)

2008 2007

L. *Cucurbita pepo*

9

() %

(r=- 0.494) (r=0.976**) (r=- 0.447) (r=0.871**)%

:

(2)

(3) (1)

...

Study of the Most Important Morphological and Productivity Characters of the Inbreed Lines of Squash *Cucurbita Pepo* L.

A. K. Marie⁽¹⁾; M. Y. Moualla⁽²⁾,
and M.G. Boras⁽³⁾

ABSTRACT

In this research, nine inbreed lines of squash (*Cucurbita pepo*, L) have been studied during 2007-2008 seasons. The study contains plant phonological phases, and the most important morphological and productivity characteristics related to fruit yield to evaluate the characteristics of every line and identify the economical lines to use it in the breeding programs. The study showed genetic variation between the groups for some important economic characteristics as (the number of fruits per plant, percentage of female flowers, yield per plant, stem long and number of nodes till the first female flower). The study also showed that the inbreed lines of squash is a rich source of variation and can be use in a breeding program to product squash hybrid. The results appeared also the positive correlation between the productivity and some important economic characteristics, such as percentage of female flowers ($r=0.871^{**}$), the number of fruits per plant ($r=0.976^{**}$). Whereas negative correlation with the nodes till he first female flower ($r=- 0.494$) and internodes long ($r=- 0.447$). Using cluster analysis, the inbreed lines were classified into 2 distinct classes A and B, Class A contained seven inbreed wreathe class B contained Tow inbreed lines

Key words: Squash, Inbreed lines, Morphological characteristics, Productivity characteristics.

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F1

.(Cardoso, 2001)

(Bassett, 1986)

.(Metwaly, 1989 Helmy, 1985)

(2004) Cardoso
Piramaoita

100

10 (1993) Helmy

6 (2003) Ercan and Kurum

100

(2003) Ahmed *et al.*
Cucurbita pepo

F1

10 (1992) El-Mighawry *et al.*

(G.C.A)
Top Cross

Bascur (2005)

(1989) Abdel-Megeed

25 (2005)

(0.869+**)

(0.701+*) %

) 5600

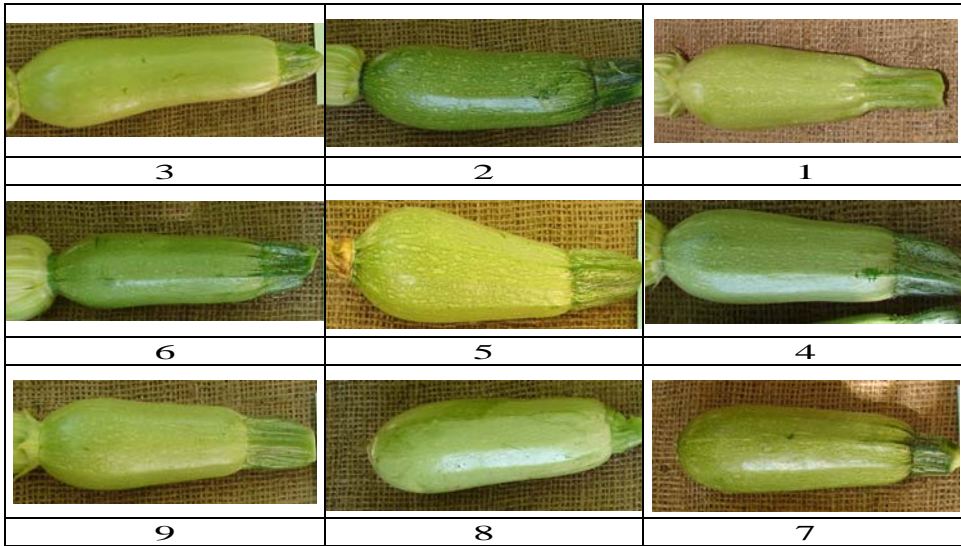
(2007

:

-1

-2

:



(1)

2008 2007

:

600

35

(PH = 7.89)

.(1)

(1)

%			100/					E.C	PH	
54	26	20	112.8	771	0.052	1.035	40.44	2.14	7.88	30-0

2008-2007

0.8

1.4

15

² 12

(IPGRI, 1983).

:
 . () -
 () -
 . -
 -
 -
 : :% -
 100 × (/) -
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 -
 C.V% %5

.SPSS MSTATC

: -
 : -1
 (2)
 (45.7) (37.5)
 (39.2)
 (1992) Peixoto *et al.*
 . 46 -32
 :() -2

(Paris, 2000)
 (88.8) (2)
 (160.6)
 (153.5 157.4)

(2) : () -3
 (1.5)
 (1.3 1.3 1.3)

(2) : -4
 (53.4)
 (77.8)

: -5

(12.6 11.7)
 (6.2 6.1) (5)
 (2) (% 6.9)

: -6

Edelstein *et*) (2) (*al.*, 1989)

.(6.3)
 : % -7

(% 40.1) (% 60.9)
 (%56.5 % 57.2 % 58.3)
 (2)

: -8

...

(37.1) (2) %
(23)
(%10.5)
:
(4336) (2) -9
(2946)

(2) .(Hoogenboom; Nesmith, 1994)

%

(Moot and Mc Neil, 1995)

.(Jana, 1993)

.C.pepo

(2)

		%				()	()		
4336.0	37.1	60.9	0.3	9.6	68.6	1.3	153.5	41.7	1
2946.0	23.0	45.4	0.2	10.7	53.4	1.5	94.4	44.2	2
3477.0	27.1	43.5	0.0	5.0	64.9	0.9	98.5	37.5	3
3063.0	24.6	40.1	0.0	12.6	76.7	1.3	157.4	45.7	4
3382.0	29.2	42.7	0.5	10.0	73.9	1.2	149.4	40.1	5
3773.0	33.4	57.2	6.3	8.4	63.3	1.2	138.4	42.8	6
3610.0	31.3	56.5	0.1	6.2	63.4	0.9	111.3	39.2	7
4105.0	35.1	58.3	0.0	6.1	64.4	0.9	88.8	40.6	8
3264.0	26.2	44.6	0.0	11.7	77.8	1.3	160.6	44.1	9
9.0	10.5	5.4	14.4	6.9	2.0	8.7	4.6	2.0	%C.V
733.0	7.2	6.2	0.3	1.4	3.1	0.2	13.7	1.9	L.S.D5%

: -

(2002)

:

(3)

:%

-1

(0.871**)

%

(1989) Metwally

(0.895**)

(0.336)

-)

(0.309-)

.(0.459-)

(0.631

(0.243- 0.189-)

:

-2

(3)

(0.976** 0.895**)

%

25

(2005)

(0.302)

(1997) Carmer

(0.015)

(2009) Soleimani *et al.*

(0.451-) (0.401-)
(0.375-)

.(0.049-)

-3

(3)

(0.871**)%

.(0.976**)

(2009) Soleimani *et al.*

(0.447-) (0.189)

(0.41-) (-0.494)

(0.063-)

(1990) Loy and Broderick (0.048-)

(3)

()		%				()	()		
								1	
							1	0.474	()
						1	0.484	0.762(*)	()
					1	0.043	0.803(**)	0.218	
				1	0.465	0.868(**)	0.706(*)	0.875(**)	
			1	-0.049	-0.196	0.119	0.156	0.146	
		1	0.336	-0.459	-0.361	-0.309	-0.189	-0.243	%
	1	0.895(**)	0.302	-0.451	-0.049	-0.401	0.015	-0.375	
1	0.976(**)	0.871(**)	0.189	-0.494	-0.063	-0.447	-0.048	-0.41	()

%1

** - % 5

*

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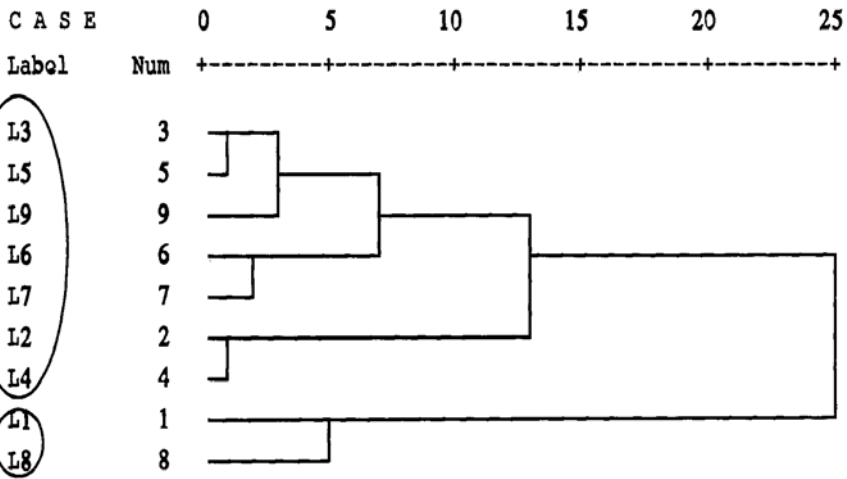
: +

%

(Ferriol *et al.*, 2004)

(2)

%



(2)

14

(2004)

. :
% -1
.
-2
(r=0.871**) %
(r=0.976**) (r=-0.447)
(r=-0.494)
-3
:
-1
-2

REFERENCES

- (2007) .
- (2004) .
- 18-3 (1) 13 .
- (2002) .
- 124 .
- Cucurbita*. Spp (2005) .
- 98 .
- Abdel -Meged, A. H. (1989). Inheritance for some economical characters in crosses among Cucumber and Squash Cultivars. Ph.D. Thesis. Fac of Agric. Minufiya Univ. pp. 155 .
- Ahmed, E. A.; Iban Oaf, H. S. and El Jak, A. E. (2003). Combining abilities and heterosis in Line x Tester crosses of summer squash (*Cucurbita pepo* L.). *Cucurbit Genetics Cooperative Report* 26:54-56.
- Bassett, J. M. (1986). *Breeding vegetable crops*, AVI Publishing company, INC, westport, Connecticut. U.S.A. 1986,214-219 p.
- Bascur, G. (2005). Evaluacion de la capacidad combinatoria general de lines autofecundads en zapalo italiano. 45 Congresso Brasileiro de olericul tura. Fortaleza, Brasil, 7 al 12 de agosto.
- Cardoso, A. I. (2004). Depression by inbreeding after four successive self – pollination squash generations. *Sci. Agric.* (Piracicaba, Braz), v.61, n. 2, p. 224-227.
- Cardoso, A. I. I. (2001). Melhoramento de hortaliças. In: Nass, L.L.; Valois, A.C.C.; Melo, I.S.; Valadares, M. C.. (Ed.) Recursos genéticos e melhoramento: plantas. rondonópolis: fundação MT., cap.12, p.293-325.
- Carmer, C. S. (1997). Specific combining ability for fruit yield and shape. Yield and yield component of cucumber (*Cucumis sativus* L.) population improved using recurrent selection. PhD Diss., North Carolina State Univ., Raleigh.
- Edelstein, M.; Paris, H.S. and Nerson, H. (1989). Dominance of bush growth habit in spaghetti squash (*Cucurbita pepo* L.) *Euphytica*, 43: 253-257.
- EL-Mighawry, A.; AWNY, S.; Mohamed, F. and Abd Elsalam, M.. (1992). Importance of Genetic Parameters Determined from the F1 Hybrids for Fruit Yield and Quality of Cucumber (*Cucumis sativus* L.). *J. Agric. Sci. Mansoura. Univ*, 17 (7): 2476- 2483.
- Ercan, N. and Kurum, R. (2003). Plant, flower, fruit and characterics of five generation inbred summer squash lines (*Cucurbita pepo* L.). *Pak. J. Bot.*, 35(2):237-241
- Ferriol, M.; Picó, B. and Nuez, F. (2004). Morphological and molecular diversity of a collection of *Cucurbita maxima* landraces. *J. Amer. Soc. Hort.Sci.*, 129 (1), 60-69.

- Food and Agriculture Organization of United Nations. (2006). Production year book (FAO). Rome. Italy. 233P.
- Helmy, E. M. S. (1993). Development pure lines of summer squash and their use in hybrids production. *J. Agric. Sci. Mansoura. Univ*, 18 (2): 489- 498.
- Helmy, E. M. S. (1985). Selection and development of inbred lines of summer squash (*Cucurbita pepo* L.) and the evaluation of their combining abilities for the production of commercial hybrids Ph.D. Thesis. Faculty of Agr. Alex. Univ. 121 PP.
- International Board for Plant Genetic Resources of *Cucurbitaceae*, IPGRI, Rome, 1993.
- Jana, S. (1993). A practical approach to improving salinity tolerance in winter cereals. H.Lieth and Al Masoom (eds): *Towards the rational use of high salinity tolerant plants*, 2:35-44.
- Loy, J. B. and Broderick, C. E. (1990). Growth, assimilate partitioning, and productivity of bush and vine *Cucurbita maxima*. In: Bates, D, M., Robinson, R. W., Jeffrey, C. Biology and utilization of the *Cucurbitaceae*. Ithaca and London: Cornell University, p. 436-447. 485p.
- Metwaly, E. L. (1989). Inbred strains of summer squash (Eskandrani) after ten generation of inbreeding and selection. *J. Agric. Tanta University* 15(1):20-27.
- Moot, D. J. and Mc Neil, D. L. (1995). Yield component, harvest index and plant type in relation to yield difference in pea genotypes *Euphytica*, 86:31-40
- Nesmith, D. S. and Hoogenboom, G. (1994). Variation in the onset of flowering of summer squash as function of days and heat units. *J. Amer. Soc. Sci*, 119(2):249-252.
- Paris, H. S. (2000). History of the cultivar-groups of *Cucurbita pepo*, in: *Horticultural Reviews* 25(2001):71-170, p1., J. Janick, ed., Wiley, New York.
- Peixoto, N.; Farias, J.G.; Olivera, E.B-de. and Olivera, DE-E.B. (1992) *Horticultura Brasileira*, 10(1): 21-22(Hortcd 1973-3/95)
- Soleimani, A.; Ahmadikhah, A. and Soleimani, S. (2009). Performance of different greenhouse cucumber cultivars (*Cucumis sativus* L.) in southern Iran. *African Journal of Biotechnology* Vol. 8 (17), pp. 4077-4083.

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