

ASSESSMENT OF FRUIT MORPHOLOGICAL CHARACTERISTICS FROM ANDROGENIC PEPPER LINES DERIVED FROM SWEET PEPPER (*Capsicum annuum* L. cv. Feherozon)

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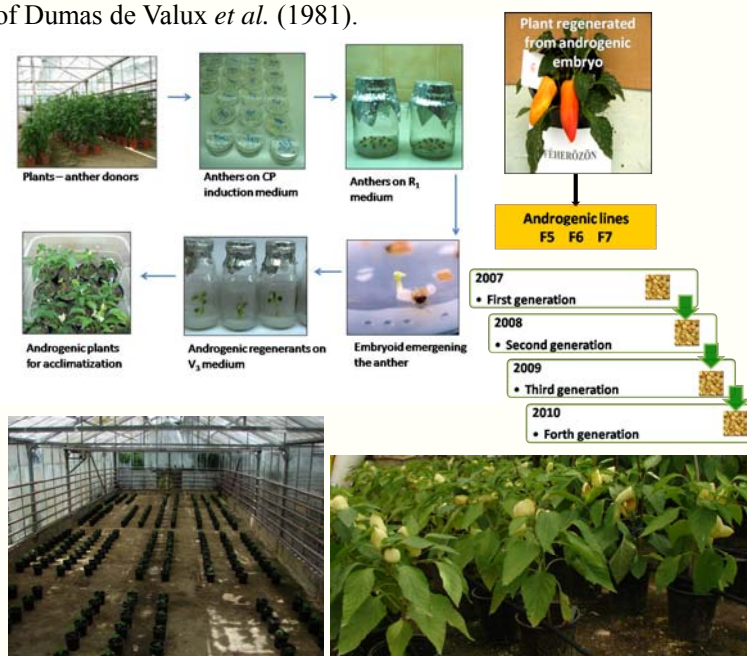
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Introduction

Pepper (*Capsicum annuum* L.) is very important worldwide grown crop with production of 31.171.567 tones in 2012. Nowadays, there is diversity of pepper varieties cultivated for different purposes. In this research the most significant fruit morphological traits of pepper androgenic lines F5, F6 and F7 obtained from the pepper variety Feherozon were investigated and compared to the parental genotype used for their induction via the method of androgenesis.

Materials and methods

The androgenic pepper lines were created according to the method of Dumas de Valux *et al.* (1981).



The four years experiment was conducted in an experimental glasshouse. The plantlets were planted in containers distributed according to the randomized experimental design in four replications. The analysis of fruit characteristics was performed on 40 fruits in both of the fruit maturity stages: length, width, index, weight, number of locules, flesh and pericarp thickness.



Conclusions

The androgenic line F6 is considerably the most different form the parental genotype for 6 fruit morphological traits.

The results of this research determine the significance of pepper androgenic lines, as new genetic resources for improvement of the agrobiodiversity and possibilities for their further utilization as a resource for molecular, genetic and breeding research work.

Results and discussion

The morphological characteristics of pepper are different and they vary in broad sense. Their variation is mostly genetically predetermined and heritable, but it is under strong influence of abiotic-biotic complex of factors, production technology and growing conditions. Nevertheless, the highest variation of pepper is shown in fruit which is the major trait used for determination of the pepper variety and its taxonomic classification.

Table 1. Fruit characteristics of androgenic lines F5, F6, F7 and the control Feherozon in horticulturally mature stage.

Genotype	Fruit length (cm)	Fruit width (cm)	Fruit index	Fruit weight (g)	Number of fruit locules	Fruit flesh (%)	Pericarp thickness (cm)
Feherozon Ø	7,86 ^{b,2}	6,07 ^{b,1}	1,32 ^{b,2}	80,38 ^{a,1}	3,31 ^{a,12}	77,77 ^{a,1}	0,45 ^{b,1}
F5	6,92 ^{c,1}	6,68 ^{a,2}	1,04 ^{c,1}	81,16 ^{a,1}	3,26 ^{ab,12}	77,66 ^{a,1}	0,49 ^{a,12}
F6	9,26 ^{a,3}	5,81 ^{c,1}	1,57 ^{a,3}	78,55 ^{a,1}	3,05 ^{b,1}	79,31 ^{a,1}	0,45 ^{b,1}
F7	6,59 ^{c,1}	6,81 ^{a,2}	1,04 ^{c,1}	83,18 ^{a,1}	3,24 ^{a,1}	77,79 ^{a,1}	0,50 ^{a,2}

Table 2. Fruit characteristics of androgenic lines F5, F6, F7 and the control Feherozon in physiologically mature stage.

Genotype	Fruit length (cm)	Fruit width (cm)	Fruit index	Fruit weight (g)	Number of fruit locules	Fruit flesh (%)	Pericarp thickness (cm)
Feherozon Ø	8,14 ^{b,2}	6,62 ^{a,2,3}	1,21 ^{b,2}	98,61 ^{a,2}	3,46 ^{a,2}	73,45 ^{b,1}	0,48 ^{a,2}
F5	6,81 ^{c,1}	6,62 ^{a,3}	1,07 ^{c,1}	88,84 ^{b,12}	3,24 ^{a,12}	75,33 ^{b,1}	0,45 ^{a,12}
F6	9,40 ^{a,3}	5,84 ^{c,1}	1,58 ^{a,3}	89,29 ^{b,12}	3,0 ^{b,1}	81,08 ^{a,2}	0,42 ^{b,1}
F7	6,27 ^{d,1}	6,29 ^{b,2}	1,03 ^{c,1}	79,41 ^{c,1}	3,25 ^{a,12}	76,70 ^{b,12}	0,45 ^{a,12}

Mean separation in column s by Duncan's multiple range test. In each column, values followed by the same letter do not differ significantly at $p < 0,05$.
Mean separation in column s by Duncan's multiple range test. In each column, values followed by the same letter do not differ significantly at $p < 0,01$.

The pepper androgenic lines F5, F6 and F7 differ from the parental genotype Feherozon for different number of fruit morphological traits in both maturity stages:

Horticulturally mature stage:

- **Androgenic line F5:** length, width, index, pericarp thickness;
- **Androgenic line F6:** length, width, index, number of locules;
- **Androgenic line F7:** length, width, index, pericarp thickness.

Physiologically mature stage:

- **Androgenic line F5:** length, index, weight;
- **Androgenic line F6:** length, width, index, number of locules; fruit flesh, pericarp thickness;
- **Androgenic line F7:** length, width, index, weight.