

New Pepper (*Capsicum annuum* L.) Genotypes Created at ICDLF Vidra

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Abstract. The pepper fruits (*Capsicum annuum* L.) may be consumed fresh and they are of great importance for their high nourishing value, as well as for the fact that vitamins are fully used by the human body. Researches were made during the period 2004-2011 at ICDLF Vidra as part of the research topic and aimed at obtaining new pepper cultivars (hybrid types). All five lines of green pepper present production differences as compared to the Export type which are statistically assured. Among the green pepper lines, line L 12 especially remarked itself by the conic fruit, being slightly mucronate and coloured as white-yellow at technological maturity and intense red at physiological maturity

Keywords: breeding, cultivar, pepper, germplasm, positive selection

Introduction. Among the vegetable species cultivated in our country, pepper (*Capsicum annuum* L.) occupies an important place, having many uses. The pepper fruits (*Capsicum annuum* L.) may be consumed fresh and they are of great importance for their high nourishing value, as well as for the fact that vitamins are fully used by the human body (Șuța, 1983). The pepper fruits (*Capsicum annuum* L.) are used for preparing a wide range of foods, they can be easily processed in the preservation industry or can be used for preparing the ground pepper. Some pepper species and varieties (*Capsicum annuum* L.) have a special decoration value and can be cultivated in pots, at home.

The high nourishing value of the pepper fruits is given by the rich content in sugars and vitamins. The ascorbic acid is present in high quantities in the pepper fruits, being between 100 mg % g fresh matter (technological maturity) and 200-300 mg % g dry matter for fruits having reached the physiological maturity (Badea *et al.*, 1984; Pintilie, 1998). The fruits chemical composition is very complex. The C vitamin content depends on the fruits' maturity level, colour and size (Somos, 1984). The cultivation conditions influence the C vitamin content, this being higher for the field cultures, as compared to greenhouse ones.

Aims and objectives. Researches were made during the period 2004-2011 at ICDLF Vidra as part of the research topic and aimed at obtaining new pepper cultivars (hybrid types), with superior productions as compared to the genotypes existing in the national assortment, resistant to the biotic and abiotic factors.

Materials and methods For obtaining the new pepper lines, the germplasm resources used in the frame of green and sweet pepper breeding process in order obtain of this material consisted in native and/or local populations as well as varieties and hybrids brought from the international assortment. As breeding methods bulk positive selection yearly resumed in the valuable populations, intraspecific pollination among valuable varieties and lines followed by the pedigree selection and bulk positive selection yearly resumed in the advanced populations were used, while selecting nine new genotypes (five green pepper lines and four sweet pepper lines).

The nine new lines of pepper were studied in the comparative plots for their behaviour (2009-2010). The variants were set up in randomized blocks placed in four

replication and during the growing season several observations and determination were performed according to U.P.O.V. file.

Results and Discussion. The results' analysis showed that all five lines of green pepper studied in the comparative plots for their behaviour, using as control variety the cultivar Export, achieved superior productions as compared to control variety (29.2 t/ha), whereas only three lines of sweet pepper achieved productions which exceeded Cornel (used as control variety – 49.7 kg/ha).

All five lines of green pepper present production differences as compared to the Export type which are statistically assured – very significant at line L12, distinctly significant at lines L 141, L 250 and L 39/9 and significant at line L 145, while for the sweet pepper only two lines presented production differences statistically ensured – distinctly significant at lines L 209 and L 206 and significant at line L 212.

Among the green pepper lines, line L 12 especially remarked itself by the conic fruit, being slightly mucronate and coloured as white-yellow at technological maturity and intense red at physiological maturity, having the weight of 120-130 g. The plant's height is of 0.74 cm, with rich light-green foliage. Average production is of 47.9 t/ha. Line L 12 was forwarded for testing in ISTIS network, while being further registered under the name of "Vidra 9".

Conclusion. The study made over nine lines of green and sweet pepper showed that all green pepper lines under study achieved superior productions as compared to control variety, with statistically ensured production differences, while line L 12 clearly remarked itself, whereas only three of the four lines of sweet pepper achieved superior productions as compared to control variety Cornel witness type with statistically ensured production differences, while lines L 209 and L 206 clearly remarked themselves. Conclusions consider revising

REFERENCES

1. Badea, C. et all. (1984). *Tratat de biochimie vegetală*. Editura Academia R.S.R., Bucuresti.
2. Pintilie, I. (1998). *Cercetări privind crearea unor soiuri și hibrizi de ardei gras, pentru cultura de câmp și solar, în zona centrală a Olteniei*. Universitatea din Craiova PhD Diss. pages
3. Sbîrciog, Gicuța. (2003). *Intensitatea fenomenului heterozis la ardei*. ASAS București PhD Diss. pages
4. Somos, A. (1984). *The Paprika*. Akademiai Kiado. Budapest. pages
5. Șuța, E. (1983) .*Contribuții la ameliorarea ardeiului gras*. IANB – București. PhD Diss. pages