HEREDITY OF CERTAIN QUANTITATIVE TRAITS AT AUTUMN- AND WINTER APPLE CULTIVARS IN THE CONDITIONS FROM CLUJ-NAPOCA

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SUMMARY

The experimental study carried out aimed at establishing the heritability coefficients in broad sense (H) for thirteen traits of interest in juice production. Traits were analyzed in view of nominalization of variants with which the genetic effects are highest in the phenotypic expression. The biological material utilized in the experiments that have been carried out were represented by five autumn apple cultivars and twelve of winter, to be found with the cultivar collection of the UASVM of Cluj-Napoca. Nominalization as genitor of the most valuable cultivars in the collection of autumn- and winter apples was not possible without knowing the extent to which the respective traits were ascertained preponderant-genetically or, by environmental conditions. Such a measurement is represented by the variability coefficient in broad sense, which was possible to be calculated on basis of the data obtained with the checked traits, during the three experimental years.

Based on the results introduced by the research work there can be outlined the following conclusions: similarly with other culture plants, with the apple too both with autumn and winter apple cultivars the characteristics possessing a simpler hereditary determinism (as for instance the dry-matter content, juice extraction, fruit density) have the highest heritability coefficients. Such a fact deserves to be remembered as the respective characteristics have an outstanding impact upon the quality of the apple juice. Other characteristics such as: fruit yield, fruit weight, fruit volume, total sugar and vitamin C contents have displayed mean to small values in the heritability indices. Such a result was foreseeable when one takes into consideration the fact that the respective traits possess to an almost certain degree polygenic genetic determinism, of the quantitative type. By corroborating the results obtained in the study on the heritability of traits with the performances recorded with the apple cultivars regarding the thirteen traits of interest for juice extraction, it is possible to assert that the variants Pătul, Florina and Generos of the autumn-apple cultivars, and Poinic, Goldspur, Starkrimson, Jonathan, Jonagold, Idared of the winter-apple cultivars, can be taken for potential genitors, valuable for the creation of apple varieties possessing high readiness degree to juice extraction.

REFERENCES

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