ASSESSMENT MODEL FOR SCION/ROOTSTOCK INTERACTION IN CHERRY COMPATIBILITY

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INTRODUCTION

Breeding process of cherry rootstocks aim to obtain a large spectrum of vigor that new rootstocks give to cherry varieties by grafting. The interactions of rootstock to varieties and expression of their compatibility are complicated but essential in choosing the best combination variety/rootstock. Making a database support for optimal graft combinations and designation of the most valuable biotypes in terms of euproductivity potential is a step forward in achieving sustainable fruit systems. So, the main objective was to emphasize new elements of the compatibility and incompatibility at cherry such as forms, manifestation, early expressions related to the morphological and metabolic changes.

MATERIALS AND METHODS

The tested rootstocks were interspecific hybrids as follows: Prunus subhirtella x Prunus canescens, Prunus pseudocerasus x Prunus incisa, Prunus incisa x Prunus subhirtella and Prunus subhirtella x Prunus pseudocerasus. Sweet cherry varieties used as scions were Van, Van C, Starking, Nero 2, Nero 3 and Durone di Batta.

The grafting method used was budding. The study was carried out in Bucharest, in the frame of the Experimental Field of the Fruit Growing Department. The experiment was organized in randomised block trials with 5 variants and 3 repetitions.

RESULTS AND DISCUSSIONS

In the nursery field, it was observed a lot of interesting scion/rootstock interactions which we concentrate them in models for cherry incompatibility. Earliest form of incompatibility is evidenced in the bud stage, when the scion began expanding but in the end is withering and it drops. Another manifestation of incompatibility is the one when the bud is expanding, is opening but the rootstock eject the scion in that condition. In a different phenological phase the incompatibility symptoms starts after 3 weeks when the leaves are opened but a senescence metabolic process interpose and it is distinguished by chlorotic yellowed leaves which premature drops. In the next phenological stage, incompatibility is manifested by a very slow rhythm of scion growing. At the end of vegetation, the shoot stays in the spur type. In any development stage of the scion, a very negative influence of the rootstock may appear more or less intense by eluding tendency of the scion shoot or branch. Also in many cases, the scion is detached and the mechanical resistance of the grafted plant is compromised.

Case I

The incompatibility showed earlier evidence, still the bud stage. In spring, the scion bud began expanding, the cataphylls are opening, the bud growing point is withering and in an advanced stage it drops.

Case II

The bud is expanding, is opening and is withering because of the rootstock refusing tendency.

Case III

After the expanding of the bud, the first leaves appear, and after 3 weeks, it starts a senescence process showed by chlorotic (yellowed) leaves and premature dropping of the leaves.

CONCLUSIONS

Many of the incompatibility forms are localized in the grafting zone and are morphological emphasized. The grafting compatibility between the partners (scion and rootstock) was defined by their genetically model. In all the grafting combinations where Prunus subhirtella Miq. appeared, the grafting success was decreased.

In the field, it was identified different incompatibility symptoms, which were classified in 5 types/cases of grafting incompatibility.

REFERENCES

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This work was supported by CNCSIS-UEFISCSU, project PN II-RI code-85/2010