

## **Summary of habilitation thesis**

### **Achievements in scientific research work on obtaining initial material and selection in horticultural species**

#### **Domain: Horticulture**

#### **Prof. Dr. Mirela Irina CORDEA**

The habilitation thesis entitled "*Achievements in scientific research work on obtaining initial material and selection in horticultural species*" comprises the results of my academic, scientific and publishing activity in the field of conventional and nonconventional breeding of horticultural species, since I have been conferred the Ph.D. title. It is structured in three parts, as required by the Agricultural and Engineering Sciences Ph.D. School of the UASVM Cluj-Napoca.

In the first part of the thesis there is a short presentation of my professional career during 2004-2017, with the analysis of my scientific and academic achievements within the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca. To my training as a researcher there played a great contribution the research internships I performed during this period of time:

- at the University of Nottingham – a 5 months Erasmus scholarship,
- at the Danish Agricultural Institute Copenhagen – a 1 year Marie Curie scholarship and
- at the University of Copenhagen – a 6 months Governmental scholarship.

The results of more than 19 years long research work are materialized in 18 publications with ISI index and 42 publications with BDI index. This research activity was based on the work carried out as project director for two grants and as a member in 12 grants. My professional prestige is revealed by the number of quotations of articles published as first author or co-author. Out of the 109 quotations, 52 are ISI indexed and 57 are BDI indexed. These results

allowed me to record a good Hirsh index ( $h=2$ ) in WOS. I am member of three national and four international scientific organizations and professional associations and, as a result of my activity within these organizations, in 2016 I became the representative person of Romania in EUCARPIA, the most prestigious professional association in plant breeding.

The second part of the habilitation thesis presents the results of my research work carried out since I have obtained the Ph.D. title, in 2004. During this period of time my research activity was aimed at obtaining a valuable initial material for breeding, creation of variability, selection and introduction of new cultivars in ornamentals. In order to obtain an initial material, valuable for selection, hybridation and mutagenesis has been used as main methods for creating variability in horticultural species. Selection and choosing the parental forms have been based on phenotypic observations as well as on molecular analyses of the studied material. Even more, the introduction of a new *Ipomoea* species in the horticultural plant breeding germplasm collection represents a decisive step for later breeding programmes.

Another direction of my research work developed towards the pretability of certain sweet corn hybrids to organic agriculture and a new preservation method of sweet corn kernels by means of lyophilisation.

The final part of this chapter reveals the efficiency of parametric and nonparametric methods in the analysis of phenotypic stability of yield and yield elements in plums and apples.

The third chapter of the thesis describes the development scheme of my scientific and academic career, after defence my habilitation thesis. The future research programs aimed by myself and my research team will be focused on improving the germplasm collection of horticultural plant breeding department, identification of (new) cultivars adapted to climatic changes present already in Transylvania as well as to new cultural systems. My research groups will comprise mostly PhD students, ready to initiate valuable research grants both in national and international competitions. It is expectable scientific papers will be originated in these research works and my academic position value will also gain.

Cluj-Napoca

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