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## SUMMARY

**Key words:** *Lilium*, Asiatic hybrids, planting systems

The lily has been discovered a long time ago, being a senior flower in the beauty service. Nowadays, the lily has an important place in horticulture as cut flower, in flowerpots and as garden plant. Is a flowering plant which had the most spectacular progress towards the industrial culture. This fact is due, first of all, to its exceptional decorative attributes.

High sustainability as cut flower in vases for 1-2 weeks and even more, gradual opening of buds, the possibility to use them in different bouquets and flower arranging, recommend the growing of lilies as being a profitable one.

The lilies have become the symbol of beauty, of love, and of most precious feelings. They have always predisposed to spiritual exaltation and poetry. There is not doubt that each flower, with its originalities, struggle to be the only flower that seduces and confine us.

For the last years, all over the world, *Lilium* has earned its popularity and is highly studied and in great demand in the industry of flowers both as cut flower and in flowerpots, due to its special features: various color, flowers perfume, flowers' capacity to be preserved, durability to transportation of cut flowers (including the capacity to be rehydrated after a long transportation) etc.

Besides, the botanists, flower cultivators as well as the historians are definitely agreed that the lily is the oldest flower from all flowery plants that has been cultivated and that "its friendship with humans" lasts from at least five millenniums. By judging their seniority in the beauty service, the lilies surpass from this point of view even the roses. In the ancient time, both lilies and roses have enjoined a well-deserved glory, being habitual decorative elements on cult and adornment objects, for it results from poets poetries from all times.



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Most important producers on the market show more and more interest in enlarging the flowery range and introducing new species with high productive potential. In this direction, several physiological and biochemical studies have been achieved regarding the quality of planting material used for setting up flower cultivation.

Flower's shape and position against the inflorescence's axle constitute the criteria which underlie the grouping of lilies species, as it follows (Șelaru, 2007):

- species with flower which has the shape of a trumpet and is disposed perpendicularly on the axle (*Lilium candidum* L., *Lilium longiflorum* Thunb., *Lilium regale* Wilson., *Lilium auratum* Lindl.);
- species with flower long pedunculated, wide opened and pendulum position against the axle (*Lilium speciosum* Thunb., *Lilium tigrinum* K.G., *Lilium superbum* L.);
- species with flowers which have the shape a crown and upraised (*Lilium croceum* Chaix, *Lilium bulbiferum* L.);
- species with tubing flowers, long and wide-opened to the upper side.

While for lilies species there are botanic classification, for the hybrids obtained from mixing the species and the groups of species between them we have a horticulture classification that arranges the different types of lilies in large groups, taking into consideration the most important features such as the ascendants and the flower's shape (Mares M. C., 2005).

The classification of hybrids and the date regarding their description are best figured in the Register of Lilies of Royal Horticulture Society from England; the classification has also been adopted by the North American Lily Society. Among these data, there are the name of the author and the year of registration, as well as the description of the most important features, namely flower's features (their number in inflorescence color, size and orientation) have a central place.

The lily hybrids are divided in 8 groups which vary according to their features as it follows: *Asiatic hybrids*, *L.A. hybrids* (*L. longiflorum* x *Asiatic hybrids*), *Martagon hybrids*, *Candidum hybrids*, *American hybrids*, *Longiflorum hybrids*, *Trumpet* and *Aurelian hybrids*, *Oriental hybrids*.

Thus, the scientific importance of this project which proposes to study the planting particularities of some Asiatic hybrids in different planting systems (field, solar and in flowerpots), by optimizing more technological agents, is a necessity not only for the production section, but also for the research one.



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Doctor's degree thesis called "**Researches on agrobiological of some *Lilium* species in different culture systems**" is structured in two sections and contains six chapters.

The first section describes the history of *Lilium* gender, agrobiological particularities, taxonomy, morphology, classification, description of main groups of hybrids, as well as the ecological exigencies and the planting particularities.

Likewise, the first section contains information on the stage of world and national acknowledgement regarding the agrobiological of *Lilium* gender species.

The second section of doctor's thesis contains the results of personal researches undertaken during the studies. At the same time, I have presented in the second section the purpose and objectives of my researches, the material and working method, as well as the natural frame conditions where the researches have taken place.

The results obtained from the researches performed during doctor's studies have been synthesized in a series of conclusions and recommendations on usage of species that belong to *Lilium* gender.

The researches performed with the aim of elaborating the doctor's thesis called "**Researches on agrobiological of some *Lilium* species in various planting systems**" have been undertaken between 2010-2013, in the experimental didactic field of study called Flowery and in the Laboratory of Horticulture Research from USAMV Iasi.

**Chapter I – General aspects regarding the culture of *Lilium* sort species** – includes information regarding the history and importance of the *Lilium* sort, and the morphological and biological particularities of the sort species.

**In chapter II – Current status of knowledge regarding agro-biology of *Lilium* sort species** - present the researches carried out on the species belonging to the *Lilium* genre both on the international and national level.

**Chapter III – Purpose, objectives, research material and methods** – presents information regarding the possibility to cultivate some Asian *Lilium* hybrids in different culture systems (on the field, in greenhouses, in pots), under the influence of some technological factors, with the purpose of establishing to what extent one of the three cultivation variants can be used, so as to insure the use of cut flowers and plants in pots or landscape arrangements.



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In order to reach the set target, the following *objectives* have been set:

Study of the influence of culture system on the agro biological traits of some *Lilium* hybrids.

Study of the foliar fertilization influence on the growth and development of Asian *Lilium* hybrids;

Morphological, physiological and ornamental characterization of the studied hybrids (*Gironde*, *Lollypop* and *Crimson Pixie*) depending on the adopted culture system and the applied fertilization variant.

Setting the way the *Lilium* sort species can be included in the decorative ensemble.

In order to obtain more conclusive results regarding the possibility to cultivate Asian *Lilium* hybrids in different culture systems, we have used working methods such as biometry techniques (height of flower stems, size of bulbs and flowers, etc.) as well as physiologic analysis (determination of chlorophyll and carotenoid pigments, determination of dried substance) and biochemical analysis (determination of reducing carbohydrate content ), statistic processing of data.

**The statistical processing** of the obtained data has been carried out with the help of Microsoft Excel computer program and the results obtained have been expressed with the help of limit differences (Săulescu N.A., Săulescu N.N., 1967).

In **chapter IV- Presentation of the natural environment, organizational and institutional framework conditions** - I present the natural environment conditions, climate conditions recorded during the experiments, and a general presentation of the Experimental Didactical Station of the Horticulture Didactical Farm and the presentation of the didactical area of the Floriculture department..

**Chapter V-Results about the influence of the culture system and fertilization one some Asian Lilium hybrids** – includes results regarding the dynamic of the influence of technological factors, influence of the culture system, influence of fertilization as well as the cumulated influence of the two experimental factors. At the same time, this chapter presents the results regarding the monitoring of some biochemical factors, soluble carbohydrate content and chlorophyll pigments for the three studies hybrids.

Chapter VI presents the **Conclusions and recommendations** drawn during the experimental period.

The researches analyzed between 2011-2013 have indicated a series of possibilities to use Asian lilly hybrids by cultivating them in various culture systems.



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At the same time we have tested the reaction of the studied hybrids to the fertilization with biological feedin order to improve the quality of the plots cultivated in the field, in greenhouses and pots.

The results obtained during the experiments carried out will be usable for the echeloning of flower production for lily cultures.

The doctorate thesis ends with the Bibliography that includes titles from Romania and abroad, regarding the researched subject.