

## STUDIES REGARDING THE GROWTH DYNAMICS OF SOME SPECIES FROM ARTEMISIA GENUS

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### Abstract

*The genus Artemisia include over 200 species spread throughout the world, of which 16 species are also present in Romania (Craciun, F. et al., 1976). The paper aims to conduct a study on the behavior in the pedoclimatic conditions of a number of 9 species of Artemisia genus in the Iasi area.*

*Among the species studied are also 6 adventive species, of which 3 species have naturalized in the Iasi area for about 3-4 decades. These three species are supposed to come from Russia or the Middle East on the railways of some agricultural products.*

*The observations made show that depending on the origin of each species, starting in vegetation, growing dynamic and the moment of flowering are different.*

**Key words:** Artemisia, spreading, uses, chemical composition, ecology

### INTRODUCTION

The species of Artemisia have a common use since antiquity. Dioscorides and Plinius in their works recommend some species of this genre to combat insects and produce an ink with which the scribes were not mice. In the twelfth century, volatile oil was quoted as the first obtaining of volatile oil (Ursula Stanescu et al., 2014)

As time passes, different medicinal properties of these species have been identified. Thus, bioactive substances are required for a wide range of diseases that may have antibacterial, antirheumatic, hypoglycemic (Robu T. and Milica C., 2004), bitter tonic, stomachic, but also a special role in combating malaria, artemisin (Pamela Weathers et al., 2017). Therefore, enriching the diversity biometric data for both indigenous species and the way of manifestation in culture to foreign species. In addition to the determination of the moment of starting in the vegetation, the dynamics of growth were also noted at well-defined intervals until the moment of flowering

### MATERIAL AND METHOD

The material subjected to the measurements was placed on 9 defined area plots, which were established in the first year of study with the following species:

*Artemisia absinthium* L., *A. dracunculus* L., *A. abrotanum* L., *A. lanceae* Vaniot., *A. argyi* H. Lev. & A., *L. austriaca* L., *A. vulgaris* L. part of the local flora, and others brought from other countries. The research was carried out for 2 years, and in the first stage was determined the start of vegetation. Plant growth was determined at 7 days between 7.04 and 13.07 respectively until the flowering in the years 2015 and 2016. The way the measurements were carried out consisted in the random choice of the plants of each species and the determination of the height from the ground (parcel area) to the top of the plants. The results obtained were averaged and represented graphically.

## RESULTS AND DISCUSSION

Of the species studied (Table 1), *Artemisia austriaca* L. and *Artemisia abrotanum* L. have been found in the first vegetation (first decade of the month March) followed shortly by *Artemisia pontica* L. Species *Artemisia absinthium* L., *Artemisia vulgaris* L. and *Artemisia argyi* H. Lev. & Vaniot and *Artemisia lavandulaefolia* DC., which originated in temperate areas, started in vegetation in the second decade of March.

Table 1

The moment of starting the studied species in vegetation

Species name	Origin	Date of vegetation start
<i>Artemisia absinthium</i> L.	Eurasia and North Africa and widely naturalized in Canada and the northern United States	12-16.03
<i>Artemisia abrotanum</i> L.	Central and South-Eastern Europe, reg. Mediterranean	04-06.03
<i>Artemisia argyi</i> H. Lev. & Vaniot	East Asia (China, Korea, Mongolia, Eastern and Eastern Russia)	15-16.03
<i>Artemisia austriaca</i> L.	Kazakhstan, Kyrgyzstan, Russia, Tajikistan; SW Asia (Iran), C, E and SW Europe	05-07.03
<i>Artemisia dracunculus</i> L.	Southeast Russia, Central and Northern Asia	25.03-05.04
<i>Artemisia lavandulaefolia</i> DC.	China, Japan, Russia, Mongolia	16-18.03
<i>Artemisia lanceae</i> Vaniot	East Asia (Korea, China, Taiwan, East Russia, Japan and India)	29.03 -03.04
<i>Artemisia pontica</i> L.	South Eastern Europe	18-22.03
<i>Artemisia vulgaris</i> L.	Native to Europe, Asia, North Africa and Alaska and is naturalized in North America	10-20.03

The species *Artemisia dracunculus* L., and *Artemisia lanceae* Vaniot, which originate from cooler areas, started in vegetation towards the end of March in the beginning of April. It is worth mentioning that the species *Artemisia vulgaris* and *Artemisia dracunculus* record the highest staging of vegetation (over 10 days).

With regard to the growth dynamics, the results are represented in Figures 1, 2, 3, 4, 5, 6, 7, 8, 9. I consider that the species *Artemisia absinthium* L. reaches the end of the measurements at a height of 234 cm in 2015 and 205 cm in 2016 *Artemisia* species

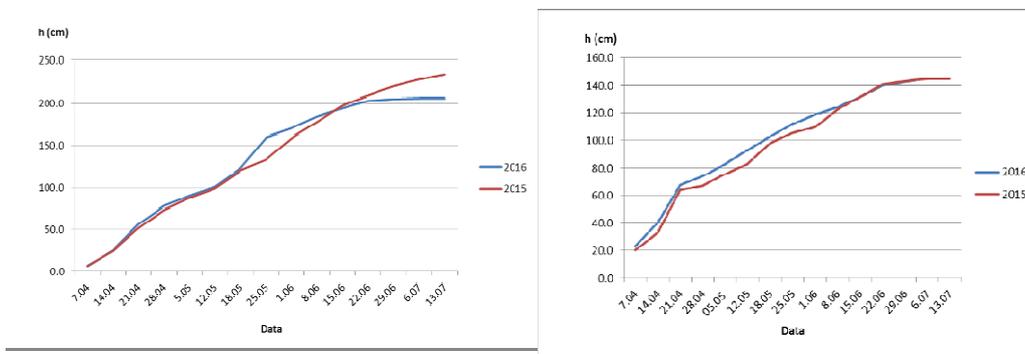


Fig. 1. Growth dynamics of *Artemisia absinthium* L.

Fig. 2. Growth dynamics of *Artemisia dracunculus* L.

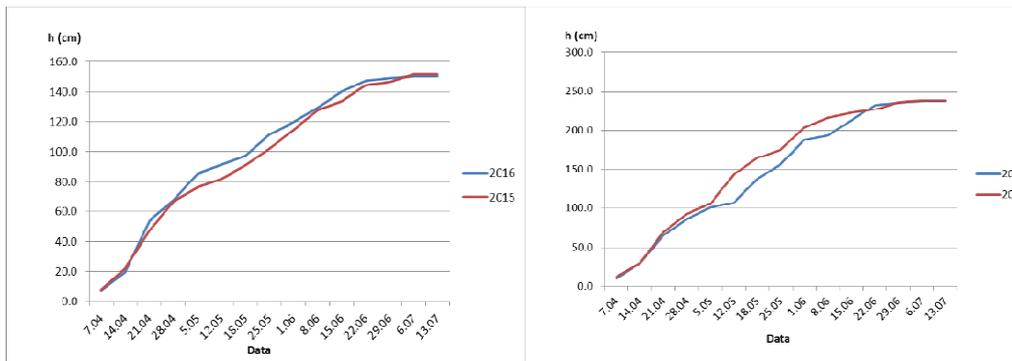


Fig. 3 Growth dynamics of *Artemisia abrotanum* L.

Fig. 4 Growth dynamics of *Artemisia lanceae* Vaniot.

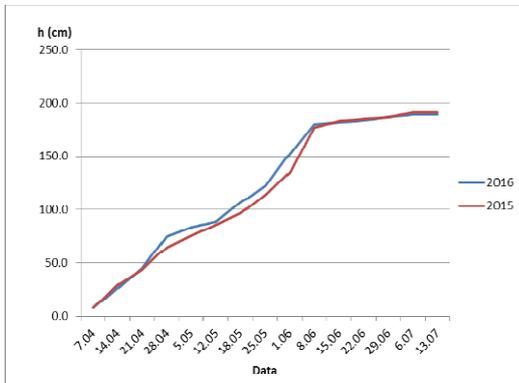


Fig. 5 Growth dynamics of *Artemisia argyi* H. Lev. & Vaniot

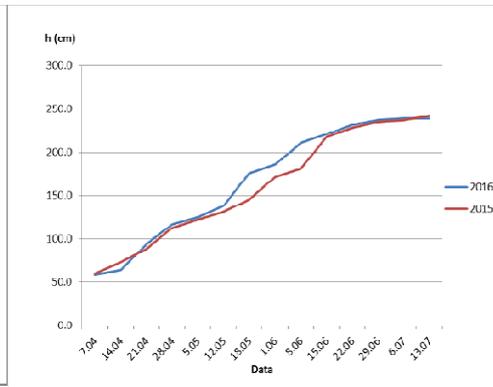


Fig. 6 Growth dynamics of *Artemisia lavandulaefolia* DC.

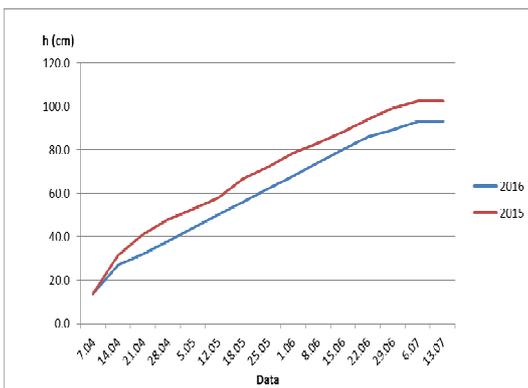


Fig. 7 Growth dynamics of *Artemisia pontical.*

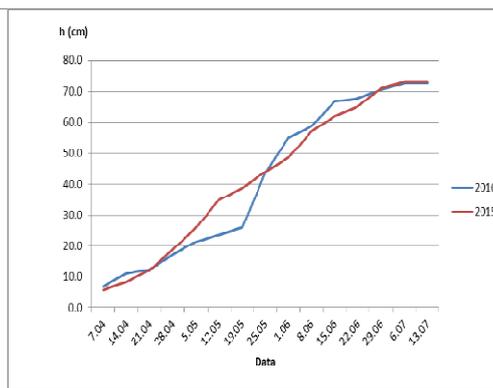
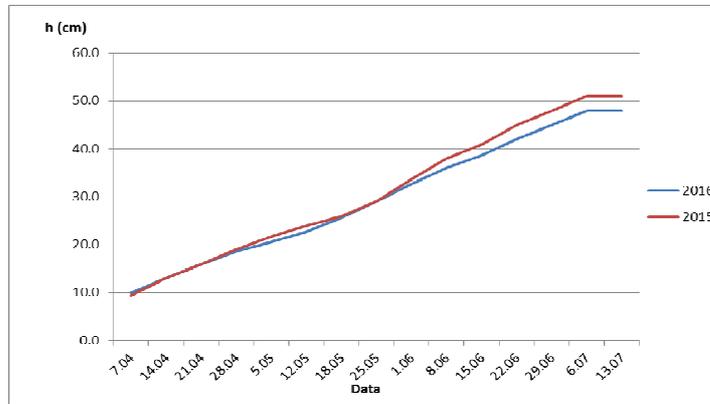


Fig. 8 Growth dynamics of *Artemisia austriaca* L.



**Fig. 9** Growth dynamics of *Artemisia vulgaris* L.

## CONCLUSIONS

Following the results presented can draw a series of conclusions such as:

- generally 2015 was a year favorable to the growth of *Artemisia* species;
- The growth rate differed from one species to another. The native species start the first in vegetation followed by the species originating from the warmer areas and then by the species of northern origin;
- the three species originating from the Middle East and the Far East have a very good behavior in the pedo-climatic conditions of the Iasi area
- unlike the data obtained in western Europe (France) where some species do not exceed 150 cm (Diplo Corinne, 1998) in our area we have cases where they reach 240 cm.

## REFERENCES

1. Ciocârlan Vasile, 2000, Flora ilustrată a României, Editura CERES, București
2. Grădilă Marga, 1998, Cultură plantelor tehnice și medicinale, Editura M.A.S.T.
3. Nyarady E.L. 1964, Flora RPR, Genul Artemisia L, Vol. IX, Editura Academiei București.
4. Păun E., 1986, Tratat de plantă medicinale și aromatice cultivate. Edit. Academiei RSR
5. Robu T., Milica C. 2004, Plantă medicinale autohtone. Editura Institutul European Iași
6. SÎRBU Culiță, OPREA Adrian 2011, Plante adventive în flora României , Edit. "Ion Ionescu de la Brad" Iași
7. \*\*\* 2007 – 1000 de plante medicinale. Editura Aquila, Bratislava.