Biological Forum – An International Journal **7**(2): 266-268(2015)

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Sicyos angulatus L. new Alien Species in Souhtern Colkheti Flora (Adjara, Georgia)

***Irakli Mikeladze*[*], *Gia Bolkvadze*[*], *Mariam Metreveli*[*], *Ramaz Chagalidze*[*], *and Murman Davitadze*[**]**

[*]*Batumi Shota Rustaveli State University, Institute of Phytopathology and Biodiversity. Kobuleti 6012, Georgia.*

[**]*Batumi Shota Rustaveli State University. Batumi 6010, Georgia.*

(Corresponding author: Irakli Mikeladze)
(Received 27 May, 2015, Accepted 07 July, 2015)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: In the end of 20th century and the beginning of 21st century synanthropyzation of flora and plants occupied the whole world including Georgia. Its change is completely impossible. We clearly see the strengthening of advent-foreign origin plants colonization. Unlike other parts of Georgia the invasion of foreign plants continues more intensely in the southern kolkheti in Adjara florist region. In this research there is given the literary survey of non-local flora spread in southern Colkheti (Adjara, Georgia) and biological characteristic features of a new invasive species *Sicyos angulatus* L. It is an annual plant that spreads mainly by reseeding itself. Seeds are produced in large numbers and the enclosing fruit is disseminated by animals, which may catch the prickly fruit in their fur.
***Sicyos angulatus* is spread on the river banks and nearby territories, mainly in the swampy and moist soils. It is widely spread on the agricultural grounds and represents as a serious weed for farmers.**

Key words: Georgia, Adjara, Invasive, Alien, Flora, *Sicyos angulatus*.

INTRODUCTION

Floristic region of Adjara is situated in the south-west part of Georgia between 41° 33′ of South latitude and 42° 35′ of East longitude. Geographically Adjara is divided into parts- seaside Adjara and mountainous Adjara. According to relief the area is divided into 4 main parts: plains, hilly zone, mountain gorges and highland. Lowlands lay along the sea coast as a narrow line and is broken with Tsikhisziri and Gren Cape high points. The height ranges between 100-1000m and 2500-2700m.

Seaside Adjara is characterized with humid subtropical climate and the inner mountainous Adjara has less humid mountainous climate. All this creates good conditions for invasion-spread of advent –foreign species (Javakhishvili, 1926; Nizharadze and Djibuti, 1978; Mandjavidze, 1982).

MATERIALS AND METHODS

Route method of the research territory (Adjara floristic region) was used for plant description on different habitats: railway, highways and stations and habitats of nearby areas; sea port territory; nurseries, abandoned green units, botanic gardens and other collection spots; ruderal areas, water channels; seaside grassy sandy areas; Where taking the plants, making and identification of the herbariums took place. Internet was used for recognition of plants.

To obtain images of main morphological features with the help of digital camera and graphic sketches; Descriptions and marking of plant distribution on the research territory was continued with application of GPS (*Global Positioning System*) technology.

RESULTS AND DISCUSSION

The appearance of foreign plants in Adjara is related to the introduction of cultural plants. Since the end of the previous century many researches and works have been done to study non-local flora in Adjara (Kolakovsky & Sachxhokia, 1946; Davitadze, 1974, 2001; Kikodze *et al*, 2010; Davitadze *at al*, 2014).

According to literary references and herbarium materials at the end of the XIX century there were 134 advent species an Adjara Flora. In the 1920ies 168, in the forties 281, since 1950 the number of advents grow by 30-40 species in every 10 years, which reached to 450 species in 2000-2010. In 2010–2014 many new advent species were described by us. Consequently the overall number for today is about 500, Fig. 1.

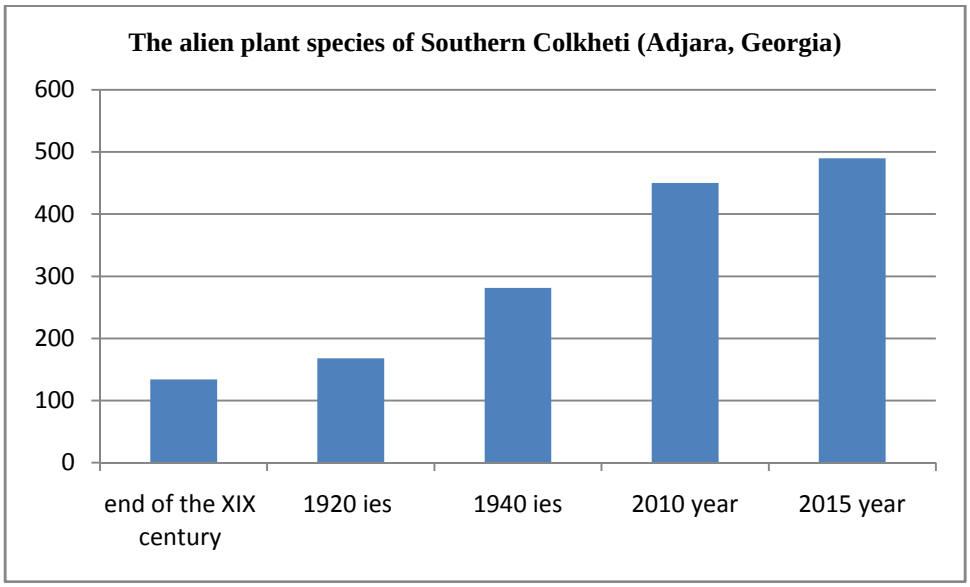

Fig. 1. Alien species growth by years.

In this research we have presented a new, foreign species for Adjara Flora *Sycyos angulatus* which was discovered by us and at the same time it contains threat from agricultural and biovariety point of view.

*Sicyos angulatus*is the north American plant of Cucurbitaceae family. It was first introduced to Europeasan ornamental, but has since escaped cultivation and become a weedy in vasive species. It occupied European countries Chech republic, Italy, Romania, Yugoslavia, Germany, Spain, European part of Russia, Turkey and widely spread into eastern Asia. The name *Sicyos angulatus*is Greek for "angular cucumber", referring to its fruit. Common Names: Bur-cucumber, One-seeded Bur-cucumber, Star-cucumber (Fernald, 1950; www.vplants.org).

This plant is an annual vine, drying entirely in the coldest months of the year. Leaves are simple, palmately veined, and alternately arranged. They have denticulate margin and 3-5shallow lobes with a cute tips. The leaf shape is orbicular-angular with a deep basal sinus, measuring about 8cm in length and width. The plant is pubescent on the stem and on the under side of the leaf along the petiole. The petiole is generally 5cm long. "The root system consists of a shallow branched taproot".

Sicyos angulatus climbs with axillary tendrils bearing 3 or 4 branches. Branches of the tendril originate 2-5cm above the base of the tendril. When the tip of the tendril makes contact with a support, it wrap so hooks around the support, securing the tendril. Proximal to the contact point, the tendril then begins to twist forming spirals. It has an unusual ability, known as perversion, to form spirals first in one direction and then in the other direction.

Flowers are monoecious with both stamen at and pistillate flowers generally arising from the same axis on pubescent peduncles. The peduncles of the pistillate flowers are generally the same length as the pedicels, where as the peduncles of the stamen at flowers are several times longer than the pedicels. The calyx is green, five-toothed, and pubescent (Tzonev, 2005; Terzioglu & Ansin, 1999). The corollas of both sexes are white with green striations, and consist of five petals fused at the base into an open bowl, and free and spread at the tips. Stamen at flowers form on either paniculate or racemose inflorescences. The anthers unite to form a central column. Pistillate flowers are borne on a compact cyme, in a globose cluster of 8-20 flowers. The pistil consists of a superior ovary, a slender style and 3 stigmas.

Flowering Time: In our condition *S. angulatus* blooms from mid-July to mid-October. Fruits are found clustered together, radiating from a central point and appearing as if it were one fruit with broad spikes. These clusters measure 2.5-3.7cm across. In reality, each 'spike' is a single fleshy fruit (a berry), that is dry and in dehiscent at maturity, with one seed in side and a single style at the tip. Each fruit is covered in sharp, white prickles and measures 1.1-1.7cm long. Each fruit contains a single, large seed.

The seed is brown, flat, and tape red at one end and is never fully released from the fruit. Thus what appears to be a seed at dispersal is a single mature vary with one seed inside. *S. angulatus* is an annual plant that spreads mainly by reseeding itself. Seeds are produced in large numbers and the enclosing fruit is disseminated by animals, which may catch the prickly fruit in their fur.

Sicyos angulatus in our conditions it is spread on the river banks and nearby territories, mainly in the swampy and moist soils. It is widely spread on the agricultural grounds and represents as a serious weed for farmers.

CONCLUSIONS

According to literary references and researches held by us the amount of non-local plant species on the territory of Southern Colkheti (Adjara, Georgia) is about 500. As for the harmfulness we put the invasive species *Sicyos angulatus* on the first place., its natural habitat is similar to the climatic conditions of south Colkheti soil and is characterized with wide range of spread.

REFERENCES

Davitadze M. (1974). East -Asian elements of adventives flora of Adjara. //*Journal of Batumi Botanical Garden.* Tbilisi.64-71.

Davitadze M. (2001). Adventive flora of Adjara. pp 198.

Davitadze M., Mikeladze I., Bolkvadze G., Metreveli M., Chagalidze R. (2014). Life forms of invasive herbaceous plants of the South Colchis. *Modern Phytomorphology.* V **6**. Lvov.189-194.

Fernald M. (1950). Grays manual of botany, 8th edition. New York, USA: America Book Company.

Javakhishvili A. (1926). GeographyofGeorgia. v.1. Geomorphology.Tbilisi. pp305.

Kikodze D., Memiadze N., kharazishvili D., Manvelidze Z., Mueller-Schaerer H. (2010). The alien flora of Georgia.pp36.

Kolakovsky A., Sachxhokia M. (1946). About new plants adventives flora of the Black Sea coast of the Caucasus. vol.VII, #5. pp 266-269.

Mandjavidze D. (1982). Relict forests of Adjara and their economic importance. Tbilisi. pp 3-35.

Nizharadze N., Djibuti N. (1978). Adjara. Batumi. pp177.

Rossen Tzonev. (2005). *Sicyos angulatus* (Cucurbitaceae), a new adventives species for the flora of Bulgaria. *Phytologia Balcanica* **11**(1): 67-68.

Terzioglu S., Ansin R. (1999). A contribution to exotic plants of Turkey: *Sicyos angulatus* L. – *Turk. J. Agric. & Forest.,* **23**: 359-362 (in Turkish).

The Plants Project. Plants: Virtual Herbarium of the Chicago Region. http://www.vplants.org/plants/species/species.jsp?gid=37348.