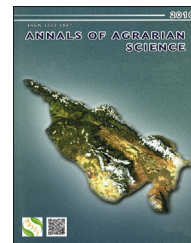


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# Distribution and some biological data of sycamore lace bug – *Corythucha ciliata* say (Heteroptera, Tingidae) in Georgia

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## ABSTRACT

The article describes invasion of the dangerous pest, sycamore lace bug *Corythucha ciliata* from Krasnodar District and its spread all over Georgia. The main biological aspects of the pest are studied: flight of imago, laying of eggs, life of nymphs, forms of damage and their estimation according to 5-grade scale. We also measured all phases of the pest (50 specimens each) by means of the microscope“MBC-1” 8x with diopter scale. We established the difference of male and female imago of the Georgian population of the pest according to the form of abdomen. The abdomen of female is rounded, and the end of the male's abdomen is rather tapered. Financial support from the government is necessary, similarly to other countries, for the control of the pest, comprehensive study of sycamore lace bug *C. ciliata* Say – serious pest of city plantings of plane tree for safe biological control of the pest in Georgia.

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## Introduction

The native North American Insect *Corythucha ciliata* emerged in Europe (originally in Italy) in the sixties of the XX centuries; since that it quickly spread all over Europe and became the pest of a plane tree in city plantings and protective strips. At the very end of the XX century, in 1997 it was detected for the first time in Russia, in Krasnodar [1,2], then quickly spread in the south of Russia [3]. In 2008 we found a sycamore lace bug in the Western Georgia, which reached the border of the Western and Eastern Georgia [4]. Since 2009 we carried out researches on expansion of area of the sycamore lace bug,

which yielded strange result on formation of rates of distribution and expansion of its area. In 2009–2010 the distribution area of sycamore lace bug extended very much. The pest is met already in Eastern Georgia as well. As it was noted early in the initial distribution of the sycamore lace bug in the Western Georgia 2–3 pieces of imago was on one leaf of a plane tree, then in parallel with increasing its number some tens per leaf were already counted; in Eastern Georgia its distribution began from 1 to 3 specimens per leaf. As the Russian scientists noted, abiotic and biotic factors have an effect during the active life of the pest – heavy precipitation and high temperatures together cause high mortality of nymph and imago, as the total number of the pest on leaves sharply decreases [5].

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In 2008 in the early spring (in April) the researches of the invasive pest of a plane tree were carried out in Western Georgia, in Zugdidi and Khobi districts. Adult individuals (imago) of a sycamore lace bug overwinter under loose bark, in bark cracks, structure etc. [4]. After expansion of the area of sycamore lace bug we collected the material (plane tree leaves together with imago) at the beginning of summer (May – June) and transferred to laboratory for specification of biological aspects.

In Russia the sycamore lace bug damages generally *Platanus orientalis* L. In Georgia the oriental plane (*P. orientalis* L.) grows in a large number; *Platanus acrifolia* and *Platanus digitata* in rather small quantity, but besides a plane tree species, sycamore lace bug is met on all types of trees.

### Objectives and methods

In 2009–2011 the material in number of more than one thousand specimens was collected: in the Western Georgia in the cities – Zugdidi, Khobi, Poti, Sachkhere, Zestaponi; in East Georgia – Khashuri, Borjomi, Okami, Tbilisi, Sagarejo, Marneuli, Bolnisi.

We also carried out observation of emergence and leaving for wintering in nature (in vicinities of Tbilisi), as the pest already spread all over Georgia. Some biological aspects were noted in the observations in the field, and in vitro at Vasil Gulisashvili Forestry Institute in the Department of forest protection.

The collected material – all phases of development of *C. ciliata* – are stored in the collection of the Department of forest protection of the Institute.

For the census of the pest – imago, nymphs and ovipositors – we used 5-grade scale of damage [6]: 0 grade – a leaf is not damaged; 1 grade – weak damage (about 5% of total surface of leaf is damaged); 2 grade – appreciable damage (from 5% to 25% of leaf surface is damaged); 3 grade – moderate damage (from 25% to 50% of leaf surface is damaged); 4 grade – severe damage (from 50% to 75% of leaf surface is damaged); 5 grade – very severe damage (more than 75% of leaf surface is damaged). The different phases of the pest are studied and measured.

### Results and analysis

In the first year (2008), after detection of sycamore lace bug on leaves of a plane tree up to 3–4 specimens of imago were detected, and in the second and third years this pest swept all Georgia and when we found this bug, in some places up to 120 specimens of imago on a leaf were found on leaves of a plane tree – September 2010 (Fig. 1).

Nymphs and adult individuals of the bug suck leaves of plane trees, maples and ash-trees. In case of their big number on foliage, in the first summer months the yellowing of foliage begins, usually in interveinal spaces near large veins, where individuals of the bug are concentrated, and then their activity proceeds on the whole leaf, and from the midsummer as a result of severe damage a leaf of the plane tree discolors to brown (Fig. 2), then it grows brown (Fig. 3) and falls.



Fig. 1 – Imago on the underside of leaf.

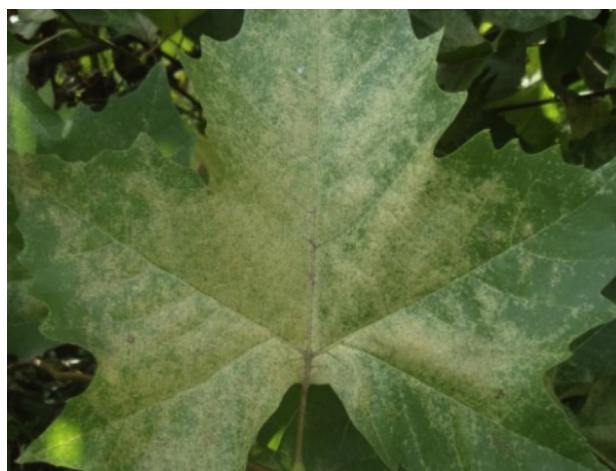


Fig. 2 – Leaf discolored to brown.

Sycamore lace bug in the Western Georgia emerges from wintering in the first decade of April and begins wintering at the end of September-in October. After the emergence from wintering the imago of bugs begins to eat (suck) from the



Fig. 3 – Brown leaf.

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