

SEED GALLS OF SEMUDOBIA BETULAE (DIPTERA: CECIDOMYIIDAE) ON SPECIES OF BIRCH (BETULA SPP.)

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INTRODUCTION

Semudobia betulae Winnertz, described in 1853, is the most common species of gall insect occurring on the genus *Betula* in the Palearctic and Nearctic regions of the world. *S. betulae* has been observed on four species of *Betula* according to Barnes (1951) and on 14 additional species according to Roskam (1977).

At the Arboretum of Mlynany affiliated with the Institute of Dendrobiology of the Slovak Academy of Sciences, eight species of *Betula* from the Palearctic and Nearctic regions have been planted. Three of them are mentioned in the papers of Barnes and Roskam: *B. pendula*, *B. ermanii*, and *B. papyrifera*.

In 1987 and 1988, the galls of *S. betulae* on the eight species of *Betula* were collected and their forms studied. Ten catkins were collected from each species and the number of attacked fruits recorded.

RESULTS

Normal seed of the birch consists of two parts: the middle part, i.e. the seed itself, and the large, round, rudimentary wings which assist in its dispersal.

Gall form differed among various birch species. We found a great number of fruit having larvae or parasites inside the deformed seed gall and normal large seed wings. In some *Betula* species, on the other hand, the seed gall consists only of the middle part, without the wings. In other species, there are still other types of seed galls, which the wings are very small or only one part of the wing is developed.

Normally developed galls were found only on *B. ermanii*, *B. nigra*, and *B. pumilla*. Great variability was found in *B. pendula* from Europe. The galls without wings were found on *B. chinensis*, *B. microphylla*, *B. nigra*, and *B. papyrifera*. Only *B. maximowicziana* was not infested. Since the fruit of this *Betula* species does not develop until 3 weeks after the flight period of *S. betulae* commences, its infestation is impossible.

The results are summarized in the following table:

<i>Betula</i> species	Distribution	Number of galls per 10 catkins	
		1987	1988
<i>B. microphylla</i> Bge.	Middle Asia	8	12
<i>B. ermanii</i> Cham.	Northeastern Asia, Japan, Korea	16	7
<i>B. chinensis</i> Maxim.	Northern China, Japan, Korea	115	10
<i>B. pendula</i> Roth. (= <i>B. verrucosa</i>)	Europe, Asia	30	62
<i>B. maximowicziana</i> Regel.	Japan	-	-
<i>B. nigra</i> L.	Eastern U.S.A.	2	15
<i>B. pendula</i> Roth.	U.S.A.	115	19
<i>B. pumilla</i> L.	Northeastern U.S.A., Labrador	135	105
<i>B. papyrifera</i> Marsh.	North America	95	33

The form of galls depends on the time when the first instar larvae start to develop in the fruit.

Our data indicate that *S. betulae* are present on seven species occurring in the Palearctic and Nearctic regions. It appears that *S. betulae* can live on many species of the genus *Betula* in the northern hemisphere. It is interesting to note that the galls of *S. betulae* were also found on *B. nana* L. in the Sumava Mountains of southern Bohemia, at an elevation of 1,000 m a.s.l.

LITERATURE CITED

- BARNES, H.F. 1951. Gall midges of economic importance. vol. V. Trees. Crosby Lockwood and Son, London. 270 p.
- ROSKAM, J.C. 1977. Biosystematics of insects living in female birch catkins. 1. Gall midges of the genus *Semudobia* Kieffer (Diptera: Cecidomyiidae). Tijdschr. Entomol., 120: 153-197.