

**TREE PHOTOELECTOR IN SAMPLING BARK-DWELLING THIRPS
(THYSANOPTERA)**

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ABSTRACT: The paper presents use of a tree photoelector, equipment being based on a principle of positive phototaxy, negative geotropism and outline orientation of arthropods. Despite a wide variety of methods to study bark-dwelling arthropods this approach appears as one of the most effective, particularly for sampling corticolous Thysanoptera. A tree photoelector offers data on diversity as well as seasonal dynamics, mobility and vertical stratification of thrips.

KEYWORDS: bark-dwelling thrips, Thysanoptera, photoelector, Slovakia

Tree photoelector

Tree photoelector has been used to sample arboricolous fauna for almost 40 years (NORD et LEWIS, 1970). Since that time it has been applied for monitoring of corticolous arthropods mainly in tropical ecosystems (e.g. ADIS, 1988). However we have almost no information on importance of photoelectors in thysanopterology, actually apart from several sporadic data in the papers by VIDLIČKA (1987), MAJZLAN et FEDOR (2003) or FEDOR et al. (2007).

There are several methods to sample bark-dwelling arthropods. Sticky traps are relatively inexpensive and simple to construct, but are messy and generally yield poor quality specimens (BASSET et al., 1997). There is a limit of the number of individuals that can stick to a band trap (SPEIGHT, 2005). After the trap is saturated with dead and dying non target and larger-sized insects (e.g. Lepidoptera, Coleoptera), right target animals can escape. Another disadvantage appears in massy application, risk of the glue hardening in

cold weather and attraction for flying insects which can not be considered as corticolous.

For collecting insects emerging from bark or wood of standing trees as well as from fungal polypores growing on trunks the trunk window trap may be used (SPEIGHT, 2005). It is a simple and effective tool for sampling mainly saproxilic beetles (GROVE, 2000) as well as saproxilic thrips (KETTUNEN et al, 2005). This method could be an alternative to bark-sample collecting and funnelling of saproxilic thrips (KETTUNEN et al, 2005).

Arboreal photoelector, which works on a principle of positive phototaxy, negative geotropism and outline orientation of arthropods (MAJZLAN et FEDOR, 2003), seems to be a suitable alternative to sample corticolous thrips. It might form microhabitats and concentration centres for some species and simulate refuges for many animals in bad weather conditions (FUNKE, 1971). Obviously there are many existing modifications of this trap (e.g. HANULA

et NEW, 1996; MOEED et MEADS, 1983) however for collecting Thysanoptera, the typical arboreal photoeclector used by FUNKE (1971), seems to be the best.

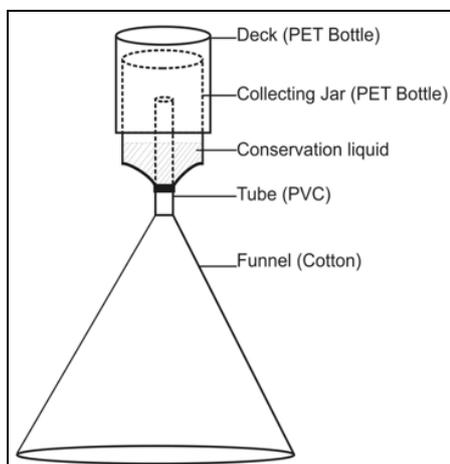


Figure 1: A tree photoeclector

Our traps (Figure 1) were constructed of black cotton funnel, which was fixed to the PVC tube of 5 cm in its diameter. The tube was scratched for easier moving of arthropods. PET bottle, which served as a collecting jar was sleeved on this tube and covered by another bottle. The cotton funnel was fixed onto bark with a wire and cement filled empty space between trunk and equipment to increase effectiveness of collecting. Conservation liquid consisted of 96 % ethyl alcohol (25 %), surfactant (5 %) and water (70 %).

Due to stratification of corticolous communities and various distribution of their species on trunks (SPEIGHT, 2005) traps are usually exposed on several height levels (e.g. 1, 2, 3 and more m).

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