

## 12. Various other arthropods

### 12.1 The effect of low oxygen pressure on museum pests

This project aims at determining exposure times necessary for effective control of museum pests after nitrogen treatment (oxygen level 0.3%). The following species and stages were used in the study: *Anthrenus museorum*, all stages; *An. verbasci*, all stages; *Attagenus smirnovi*, eggs, larvae; *At. woodroffei*, larvae; *Ptinus tectus*, larvae, pupae, adults; *Reesa vespulae*, larvae; *Tineola bisselliella*, eggs; *Trogoderma angustum*, eggs, larvae. Exposures were conducted at 25°C and 55% RH with exposure times ranging between 6 and 72 hours.

The results of previous investigations were analysed, and the following conclusions were drawn: In most of the species and stages 100% mortality was obtained within 72 hours of exposure. The test species can roughly be divided into three groups: a relatively sensitive group containing three stages of *An. museorum*, a relatively resistant group consisting of *An. verbasci* pupae, *At. smirnovi* larvae and *At. woodroffei* larvae, and the remaining species and stages as an intermediate group.

The following species and stages were selected for further studies. *An. museorum* eggs; *An. verbasci* pupae and *T. angustum* larvae. Exposures were conducted at 0.35% oxygen, 20°C and 50% RH. The eggs were exposed for maximum 72 hours, and the pupae and larvae for maximum 96 hours. None of the exposures resulted in 100% mortality. The larvae of *T. angustum* were extremely resistant with almost 50% of the test specimens surviving after 96 hours' exposure.

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