

DEZINSEKCIJA STARIH UVEZA y ZRAČENJEM (DESINSECTION OF BOOK BINDINGS BY y RADIATION)

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INTRODUCTION

Today, a much greater attention is given to keeping the storages clean, so the occurrence of bacteria, mold and insects is much rarer than in the past. The appearance and development of insects are facilitated by temperatures above 20 C, humidity above 60-70% RH, darkness and peace. Precisely such conditions are found in dark, damp and unventilated storages that are rarely entered. In this case, similarly to other biological causes of damage, the most dangerous insects are the ones that feed on the material of which a written heritage consists. They reproduce by copulating or parthenogenesis. Their eggs are very light and can easily be carried by air over long distances. Those eggs can survive in poor conditions and develop when they find optimal conditions for growth. The most harmul damage on the heritage material comes from female insects when they lay eggs and from larvae. While growing and developing, the hatched larvae feed on the organic material they inhabit, thus puncturing and destroying it.¹







INSECTS AND THEIR LIFE CYCLE²

DESINSECTION WITH GAMMA RADIATION

In the Central Laboratory for Conservation and Restoration of Croatian State Archives, we often encounter biologically damaged books. In such cases, the damaged paper is desinfected during the process of restoration and the damaged boards are taken to the Laboratory for Radioation Chemistry and Dosimetry at the Ruder Bošković Institute, where a procedure of radiation desinsection is applied. The boards are radiated with y waves of radioactive Cobalt isotope (60Co), with the dosage of 2 kGy. The dosage is adjusted so that it eradicates the insects, but it does not break the polymer molecules in wood and leather.

EXAMPLES³





Incunabula Gregorius IX. Decretalium compilatio libb. V, cum glossis. Venetiis, Andreas Torresanus de Asula, 1498.

Franciscan monastery Kampor, Rab



Liturgical book of Božidar Vukotić. Venice, 1519.

Ortodox church of s.Elias, Zadar

CONCLUSION



This is a case of extreme damage caused by woodborer insects after the growth phase of three years has passed. The problem was ignored and during that period of three years, wooden window sills were literally turned into dust.

This is the reason why cultural heritage should be regulary examined and, if found necessary, properly desinsected via common methods, in this case by gamma radiation.

LITERATURE

1. Pinniger, D. Insects Pests in Museums, Archetype Publications Limited. London, 1994.

2. http://www.diydoctor.org.uk/projects/woodworm.htm

3. Fotodocumentation from Central Laboratory for Conservation and Restoration of Croatian State Archives

