

HRVATSKI  
RESTAURATORSKI  
ZAVOD

# PREGLJED TRENUTNOG STANJA DRVENIH POLIKROMIRANIH SKULPTURA IZ GORE

## OVERVIEW OF THE CURRENT STATE OF WOODEN POLYCHROMED SCULPTURES FROM GORA

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**1** Skulpture Anđela i Mrtvog Krista dio su skupine od sedam skulptura pronađenih 30. rujna 1997. godine, točno šest godina nakon što su bile skrivene u kripti srušene crkve Blažene Djevice Marije u Gori kraj Petrinje. Smatralo se su izgubljene u požaru i granatiranju kojem je crkva bila izložena tijekom ratne agresije na Hrvatsku.

The sculptures of the Angel and the Dead Christ are two out of seven sculptures that were found on the 30<sup>th</sup> September 1997, six year after they had been hidden in the crypt of the Church of the Blessed Virgin Mary in Gora near Petrinja. They were thought to have been destroyed in the fire during the war in Croatia.



Sl.1. Srušena crkva Blažene Djevice Marije u Gori kraj Petrinje  
Pic.1. Ruins of the Blessed Virgin Mary church in Gora near Petrinja

**2** Skulpture su se nalazile u polu raspadnutom stanju na vlažnom, rahlo mekanom humusu prekrivene obiljem plijesni, gljivica, biološkog otpada, izmeta i uginulih životinja (ptica). Iako je 1997. godine bila izrazito suha jesen, vlaga u kripti bila je previsoka. Bile su pomiješane s lješovima (cjelovitim i raspadnutim) te ljudskim kostima. Bile su trule, raskvašene, mekane na dodir i izuzetno krhke.

The sculptures were found in a decaying state on the moist, moss covered ground underneath a layer of fungi, biowaste, faeces and bird carcasses. Even through the autumn of 1997 was a dry one, the moisture level in the crypt was too high. Both sculptures were lying amongst the animal carcasses and human bones, and were rotten, soaked, soft and extremely fragile.



Sl.2. Zatečeno stanje Anđela - total, fotografija prikazuje infestaciju skulpture bijelom plijesni i gljivicama (dokumentacija HRZ-a)  
Pic.2. Prior condition of the Angel - total, the photograph shows infestation of the sculpture using white mould and fungi (documentation of the Croatian Conservation Institute)



Sl.3. Zatečeno stanje Anđela - detalj, fotografija prikazuje infestaciju skulpture bijelom plijesni i gljivicama (dokumentacija HRZ-a)  
Pic.3. Prior condition of the Angel - detail; the photograph shows infestation of the sculpture using white mould and fungi (documentation of the Croatian Conservation Institute)



Sl.6. Zatečeno stanje Anđela - total 2011., fotografija prikazuje današnje stanje nakon izvođenja konzervatorsko-restauratorskih radova završenih 2006. godine (dokumentacija HRZ-a, snimio M. Braun)  
Pic.6. Prior condition of the Angel - total in 2011., the photograph shows present condition after conservation-restoration processes had finished in 2006 (documentation of the Croatian Conservation Institute; photo by M. Braun)



Sl.4. Zatečeno stanje Mrtvog Krista - total, fotografija prikazuje infestaciju skulpture plijesni i gljivicama, biološkim otpadom i humusom (dokumentacija HRZ-a)  
Pic.4. Prior condition of the Dead Christ - total; the photograph shows infestation of the sculpture with white mould, biological waste and humus (documentation of the Croatian Conservation Institute)



Sl.5. Zatečeno stanje Mrtvog Krista - detalj, fotografija prikazuje infestaciju skulpture plijesni i gljivicama, biološkim otpadom i humusom (dokumentacija HRZ-a)  
Pic.5. Prior condition of the Dead Christ - detail; the photograph shows infestation of the sculpture with white mould, biological waste and humus (documentation of the Croatian Conservation Institute)



Sl.7. Zatečeno stanje Anđela - detalj torzo 2011., fotografija prikazuje današnje stanje nakon izvođenja konzervatorsko-restauratorskih radova završenih 2006. godine (dokumentacija HRZ-a, snimio M. Braun)  
Pic.7. Prior condition of the Angel torso detail in 2011., the photograph shows present condition after conservation-restoration works finished in 2006. (documentation of the Croatian Conservation Institute; photo by M. Braun)



Sl.8. Zatečeno stanje Anđela - detalj torza 2011., na UV-fotografiji primjećuju se ostaci konsolidanta i nisu primijećeni mikroorganizmi (dokumentacija HRZ-a, snimio M. Braun)  
Pic.8. Prior condition of the Angel - torso detail in 2011.; UV photography shows consolidant's debris and there's no sign of microorganisms (documentation of the Croatian Conservation Institute; photo by M. Braun)

**3** Zbog trenutne situacije i lošeg stanja skulptura trebalo je brzo reagirati i spriječiti daljnje djelovanje mikroorganizama na skulpture te prenatrag sušenje. Stoga su umotane u polietilenske folije i prevezene u Zagreb, gdje su neraspakirane smještene u Zavod za restauriranje umjetnina (danas HRZ) u prihvatnu čuvarnicu zvanu "dezinfekcija". U ponedjeljak, 6. listopada 1997. u Institutu "Ruđer Bošković" izvršeno je zračenje gama zrakama u dozi dovoljnoj za dezinficiranje skulptura. Nakon zračenja skulpture su vraćene u prihvatnu čuvarnicu Zavoda gdje je adaptirana komora za njihovo postupno sušenje. U tijeku sušenja došlo je do ponovne aktivacije plijesni i gljivica te je ponovljeno dezinficiranje gama zračenjem 1. travnja 1998. g. Skulpture su unutar prihvatne čuvarnice premještene na police s RV zraka unutar raspona 45-65%. Takva vlažnost ne omogućuje aktivnost gljivica budući da se i vlažnost drva ekvilibrirala na te "normalne" uvjete. U idealnim uvjetima bilo bi poželjno analizu plijesni i gljivica napraviti prije tretmana dezinfekcije i tim putem pronaći adekvatnu metodu dezinficiranja. Međutim, tadašnja specifična situacija zahtijevala je brzo reagiranje. Zbog toga su naknadno uzeti uzorci za analizu plijesni i gljivica sa skulptura. Analize su pokazale prisutnost više vrsta plijesni (Alternaria tenuis 1211, Sordaria fimicola 1051, Paecilomyces variotii 1001 i Penicillium chrysogenum 615) i bakterija (Bacillus sp. Streptomyces sp.). Pronađeni mikroorganizmi štetni su za ljudsko zdravlje. Nastavak radova započeo je 2004. i trajao do 2006. godine konsolidacijom drvenog nosioca, podljepljivanjem bojanog sloja te uklanjanjem površinske nečistoće mehaničkim i kemijskim putem. Zbog preopterećenosti Zavoda ugovorenim poslovima, na skulpturama nisu izvođeni daljnji konzervatorsko-restauratorski radovi te su skulpture 2007. godine pohranjene u centralnu čuvarnicu Restauratorskog centra u Ludbregu, gdje se održavaju i idealni mikroklimatski uvjeti.

Since the sculptures were found in such a poor state, emergency intervention was needed in order to prevent further spreading of the microorganisms as well as the accelerated drying out. They were wrapped in polyethylene sheets and transported to the Conservation Institute in Zagreb, where they were placed in the store room called "disinfection". On Monday 6<sup>th</sup> October 1997, the sculptures were gamma irradiated at the Institute "Ruđer Bošković" using gamma rays in the quantities sufficient for disinfection of sculptures. After the gamma irradiation, the sculptures were placed in the store room in the Conservation Institute whose conditions were adjusted to start the gradual drying of the sculptures. During the drying process, fungi and moss re-appeared so the sculptures had to undergo disinfection again using gamma irradiation in April 1998. Both sculptures were then stored on shelves exposed to relative humidity within 45-65% range. That level of moisture doesn't enable the activation of fungi, considering that the moisture of the wood equilibrated to those "normal" conditions. In an ideal situation, the most appropriate method of disinfection would have been chosen by doing an analysis on the fungi prior to the disinfection process itself. However, that was not possible at the time because urgent intervention was required. The samples were taken and analysed following the initial treatment. The analysis showed the presence of a number of fungi (Alternaria tenuis 1211, Sordaria fimicola 1051, Paecilomyces variotii 1001 i Penicillium chrysogenum 615) and bacteria (Bacillus sp. Streptomyces sp.). The microorganisms that were found are hazardous to human health. The work was continued in 2004 till 2006 by consolidating the wooden carrier, reattachment of the painted layer and removal of surface impurities using chemical and mechanical methods. Due to a number of other contracts at the Institute, no further conservation-restoration work was done on the sculptures, and in 2007 they were removed and stored in Ludbreg under ideal microclimatic conditions.



Sl.9. Zatečeno stanje Anđela - detalj desne noge 2011., fotografija prikazuje današnje stanje nakon izvođenja konzervatorsko-restauratorskih radova završenih 2006. godine (dokumentacija HRZ-a, snimio M. Braun)  
Pic.9. Prior condition of the Angel - right leg detail in 2011; the photograph shows present condition after conservation-restoration works finished in 2006. (Documentation of the Croatian Conservation Institute; photo by M. Braun)



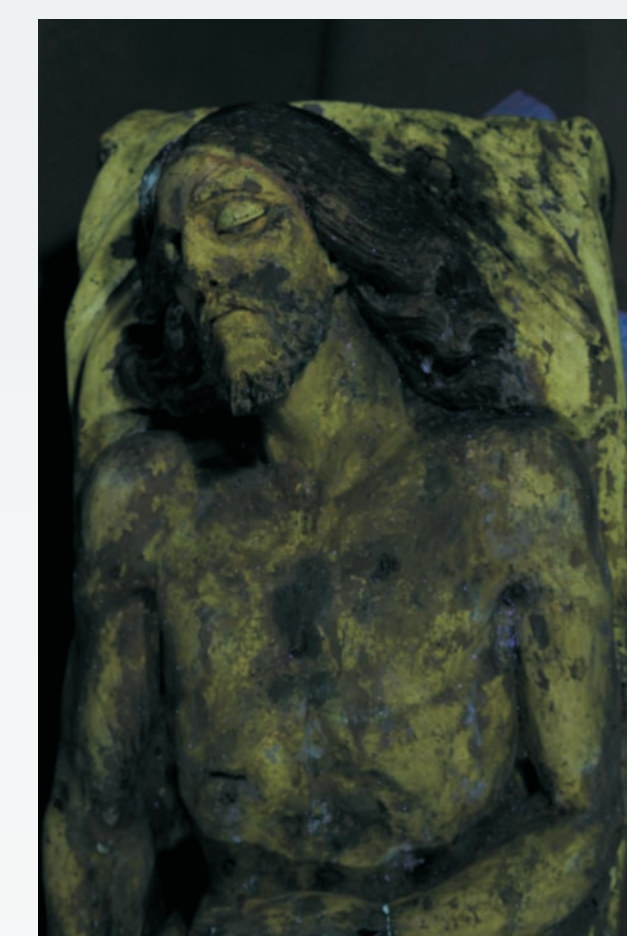
Sl.10. Zatečeno stanje Anđela - detalj desne noge 2011., na UV-fotografiji se primjećuju ostaci konsolidanta i na dijelu desne noge se sumnja na prisutnost mikroorganizama zbog čega je s tog mjesta uzet uzorak za mikrobiološku analizu. (dokumentacija HRZ-a, snimio M. Braun)  
Pic.10. Prior condition of the Angel - right leg detail in 2011; UV photography shows consolidant's debris and there's suspicion for microorganisms, the piece for the further microbiological analyze has taken (documentation of the Croatian Conservation Institute; photo by M. Braun)



Sl.11. Zatečeno stanje Mrtvog Krista - total, fotografija prikazuje današnje stanje nakon izvođenja konzervatorsko-restauratorskih radova završenih 2006. godine (dokumentacija HRZ-a, snimio M. Braun)  
Pic.11. Prior condition of the Dead Christ - total, the photograph shows present condition after conservation-restoration works finished in 2006. (documentation of the Croatian Conservation Institute; photo by M. Braun)



Sl.12. Zatečeno stanje Mrtvog Krista - detalj torza, fotografija prikazuje današnje stanje nakon izvođenja konzervatorsko-restauratorskih radova završenih 2006. godine (dokumentacija HRZ-a, snimio M. Braun)  
Pic.12. Prior condition of the Dead Christ - torso detail; the photograph shows present condition after conservation-restoration works finished in 2006. (Documentation of the Croatian Conservation Institute; photo by M. Braun)



Sl.13. Zatečeno stanje Mrtvog Krista - detalj torza, na UV-fotografiji primjećuju se ostaci konsolidanta i nisu primijećeni mikroorganizmi (dokumentacija HRZ-a, snimio M. Braun)  
Pic.13. Prior condition of the Dead Christ - torso detail; UV photography shows consolidant's debris and there's no sign of microorganisms (documentation of the Croatian Conservation Institute; photo by M. Braun)

**4** Nakon četiri godine, u rujnu 2011. godine, ponovno je pregledano stanje; mjerena je vlaga i temperatura koja je iznosila 21°C te 56% RV. Skulpture su vizualno pregledane i snimljene pod dnevnim i UV svjetlom da se ustanovi je li došlo do ponovne reinfestacije. Vizualnim pregledom površine nije uočena prisutnost mikroorganizama, osim na lijevoj nozi Anđela. Na tom mjestu uzet je uzorak polikromacije za mikrobiološku analizu koja će utvrditi prisutnost mikroorganizama. Zbog povoljnih mikroklimatskih uvjeta u kojima se umjetnine čuvaju nije došlo do ponovne infestacije.

The sculptures were inspected again after 4 years, in September 2011; moisture and temperature levels were measured and they were 56% and 21°C respectively. The sculptures were then inspected and photographed under daylight and UV light to establish whether there was a further re-infestation. Surface inspection showed that no infestation was present apart from the area of the left foot of the Angel. A polychromatic sample was taken from that area for microbiological analysis to determine the presence of microorganisms. New infestation didn't occur due to appropriate microclimatic conditions in which the sculptures have been kept.

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