



FIRST GAMMA IRRADIATION IN THE COLOMBIAN CULTURAL HERITAGE: THE CASE OF THE ARTWORK *MUTANTES* OF THE NATIONAL MUSEUM OF COLOMBIA

My name is Ana Paula Gómez Uribe and I am a cultural heritage conservator and restorer with a master's degree in art history. I work in the Museum Strengthening Program of the National Museum of Colombia - Ministry of Culture as an advisor in conservation and collection management for the benefit of all the country's museums.

I am currently the main counterpart of the ARCAL RLA1019 project in Colombia and I coordinate the collaboration between the country's museums and the services of the Directorate of Nuclear Affairs of the Colombian Geological Service (SGC) to make peaceful and correct use of nuclear techniques in favor of the conservation of the national cultural heritage. An agreement is currently being drawn up between the National Museum of Colombia and the Directorate of Nuclear Affairs of the Colombian Geological Service so that more cultural entities benefit from the application of nuclear techniques for the treatment of their heritage affected by a fair or poor state of conservation.

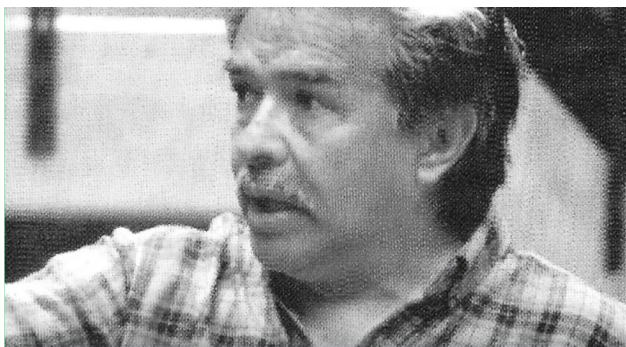


Fig. 1 *Carlos Rojas, Colombian artist*

Last year, within the framework of this project, gamma-ray irradiation was carried out for the first time on an artistic heritage asset of the Nation: the work "Mutantes" by Carlos Rojas, which is a work of contemporary art from the National Museum of Colombia and whose mixed technique with wood presented a biological attack of xylophagous insects. The selection of this artwork to be irradiated was

based on the fact that it was chosen by the Museum's curators to be part of the permanent exhibition for room 15. The artwork had to be free of any biological infestation to avoid the risk of contaminating other objects in the exhibition room. Its large format, made up of 13 vertical wooden modules, each approximately 1 meter high, made the conservation area consider methods for treating biological attack that could cover the entire surface of the work. These modules were built by master Rojas from recycled wood that he found on the street and never had a previous preparation treatment. Already part of the



Museum's collection, they were temporarily stored in the reserves of the General Archive of the Nation until 2021, when 4 of the 13 modules with an active biological attack by xylophagous insects were inspected and identified.

From the nuclear affairs directorate of the Colombian geological service, radiation with gamma rays of 8 kGy was experimented with, which can reduce microbial load and insects according to the literature. Given that other food or cosmetic products with similar densities and geometries are irradiated in the SGC, routine doses were used. This process was accompanied by a microbiologist who made a micro-culture of the affected area before and after the process. However, due to several factors, the results were not conclusive, but under macroscopic inspection, it was found that the treatment was effective.



Fig. 2 The artwork *Mutantes* in the facilities of the Colombian Geological Service, in the company of the engineer in charge of carrying out the controlled irradiation.

Fig. 3 Taking microbiological samples for cultures

Fig. 4 Installations of the Directorate of Nuclear Affairs of the Colombian Geological Service (SGC)



Fig. 5 & 6 Assembly and final view of *Mutantes* in room 13

The ideal is that this process can be repeated with other heritage objects that present different techniques and materials in small, medium, and large formats and that belong to collections of Colombian museums, as is the case of a large-format tapestry by the Colombian artist Olga de Amaral. of the Museum of Antioquia in the city of Medellin.