

RESEARCHES IN CHURCHES FROM GRIGORIE DECAPOLITUL CAVE, BISTRITA DISTRICT, ROMANIA

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Grigorie Decapolitul Cave is located in Căpățâni - Buila Vânturița Mountains at 850 m high near to Bistrița Monastery. It is also known as Bats Cave because it represents bats' habitat. To the east of Main Gallery there is Arhangheli Saints Church and to the west there is Ovidenia Church.

Arhangheli Saints Church there is in front of the window of the cave and it was built from bricks and stone. Mural painting had been done in frescoes technique, specific for transition between the old style to the new one characteristic for Matei Brâncoveanu time. Technological analysis established that the church had been painted in three stages: the first one by an unknown painter sometimes in XVII the century, the second by Efreem between 1781-1782 and the third by Partenie painter in 1829. The sequence of them can be seen in altar. The picture had been done on wet plaster and fixation of pigments by CaCO_3

Ovidenia there is on the bottom of the gallery dig in the rock; the lateral walls are supplemented with bricks; the vault is represented also by rock. The mural painting looks like those from Arhangheli Saints Church but repainting had been done in "a secco" technique.

During our research it had been put in evidence the main causes of deterioration: water, fluctuation of temperature, air movement, biodeteriogens and human activity. The roof made by wood is deteriorated by humidity and by fungus *Coniophora puteana*

Drops of water from the rock are leaked on the roof, then on the walls and are accumulated on the basement where water content is 80-90%. The plaster is detached and partial powdery. The outer walls up to 50 cm high is green because subaerial biofilm containing alga, heterotrophic bacteria and filamentous fungi. On the guano deposits produced by bats had been identified fungal genera (*Mucor* and *Rhizopus*). On the drops of wax from mural paintings and on candles used for illumination during visits of tourists had been identified the following fungi: *Aspergillus niger*, *Aspergillus versicolor*, *Aspergillus fumigatus*, *Mucor mucedo*, *Rhizopus nigricans*, *Cladosporium herbarum*, *Alternaria alternata*, *Ulocladium sp*

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