Eliminating lampenflora along the tourist trail of "Grotte di Castellana"

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The "Grotte di Castellana" are situated in Puglia, a region in the south-east of Italy. They were discovered in 1938, and developed some years later. The karst system is 122 meters deep and 3250 metres long. The main branch is used as a show cave.

A serious problem in "Grotte di Castellana" is *lampenflora*, the proliferation of algae, ferns and mosses near artificial light sources. The heat from lamps, the CO_2 from visitors' breath, as well as the natural high humidity of the cave atmosphere, are ideal conditions for the plant's growth. The management team was working on and off for sometimes reducing the negative factors by regulating the number of tourists, selecting different kinds of lamps, filtering air from the outside to refresh the climate inside the cave. These methods didn't achieve good results, maybe because of non-regular and incorrect applications.

A Technical-Scientific Committee was established in 2000 at the "Grotte di Castellana" in order to coordinate the scientific research carried out in the karst system, and to face the many problems related to the management and protection of the cave.

At present time the Committee is experiencing the methods currently used in the main tourist caves of the world, especially the application of sodium hypochlorite (bleach) and oxygen peroxide (H_2O_2). There will be an attempt to find out the minimum effective rate of these chemicals in order to reach the elimination of lampenflora without damaging the natural cave biota and speleothems.

A biospeleological survey has been done in the cave before starting the cleaning tests. The investigations have concerned the identification of the animal species living in the cave and their own density of population. The same inventory will be replicated after

the tests to compare the possible changes in the cave's environment.