

## **An unusual occurrence for leonite, konyaite and syngenite: Tausoare Cave (Romania)**

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Tausoare Cave is renown for its gypsum and mirabilite speleothems, as well as for its paleontological remains and interesting Quaternary features. Of interest are the white crystalline speleothems formed on the floor of the "Dining Room" that earlier had been described as consisting of mirabilite. The samples we collected reveal the presence of crystals having two different habits. One shows the characteristic mirabilite fibrous crystals while the other formed bladed and short-prismatic crystals that build delicate cave flowers. The mineral association was characterized by means of X-ray analysis, scanning electron microscopy (SEM), and electron microprobe. Beside thenardite that is the dehydration product of mirabilite we also identified three sulfate minerals: leonite, syngenite and konyaite. Of these, leonite and konyaite have never been reported in a cave environment.

The origin of these minerals is related to the reaction between the slightly acidic waters (oxidation of pyrite within the limestone or shales) and Ca, Na, K, and Mg anions provided by limestone, sandstone (more or less weathered) and clay sediments.

Yet, another possible interpretation of their crystallogenesi s would be the flooding events that often occur in the Dining Room. This latter theory also supports the changes in the abundance of these speleothems at different time periods.

For both crystallogenesi s scenario we believe the solutions is moving upwards either through capillary channels from limestone or sandstone or through the loose material lying on the cave floor.