

In my diploma thesis I observed microbial activity in Miocene sediments collected at two different depths - 30 and 150 meters - in the „Družba“ open-mine pit, which is located in Sokolov Brown Coal Basin. There were three different types of sediment: lamellar, amorphous and transitional. Samples were obtained under sterile conditions and following treatments were applied to the transitional sediment: addition of glucose, wetting and freezing.

The aim of my study was to observe the activity of the original microflora at various depths and the impact of environmental factors that can affect the quarried claystones after being put on heaps. Microbial activity was evaluated by measuring released CO₂ (titration). Obtained values of microbial activity did not show any differences between the respiration of sediments of different ages (depths), but differences between different types of sediments were significant, the highest values were found in lamellar sediment.

Affection of samples then showed biota activity response suggesting that microbial communities at lower depths are limited by nutrients. Because the application of glucose did not show any noteworthy effect, we can assume that these communities are specialize on present fossil organic matter they are able to decompose, which is important especially in the early stages of heaps development.