The Unique Properties of Onondaga Cave Algae

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Show caves with artificial lighting can be colonized by algae that would not normally be native to the environment. Onondaga Cave algae has no exposure to natural light and minimal exposure to artificial lighting. The experiment tested what effects different wavelengths of light had on the growth of the algae, in order to determine if the algae had developed unique survival adaptations specific to the cave. The second goal was to determine if the algae was a previously identified or new species. Algae samples were collected and microscopically studied to determine the type of algae, which was filamentous and mat forming. Equal samples were then placed in flasks under continuous full spectrum grow lights. Six different colored filters, which restricted different spectrums of light, were used to cover the samples. The control flask had no filter. Algae was fed, water levels kept consistent, and growth monitored. The goal was to isolate whether or not the algae would be able to photosynthesize with light wavelengths that most algae could not use. The algae did show interesting results, in particular, growing well under green light that normally wouldn't allow for strong photosynthesis. It also struggled, and in some cases died, under wavelengths that normally promote easy growth. The genus of the algae was confirmed to be Vaucheria. However, it is still unknown if it is a new species.

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