

Learning from algae sex

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Researchers at the Norwegian University of Science and Technology (NTNU) are delving into the mysterious world of algae to find better ways to put these organisms to use.

Some are studying [algae](#) sex – an area where they have made surprising discoveries.

"Algae basically reproduce through [cell division](#), where they get smaller for each division due to the cell walls of glass that form in the dividing cell (like a shoe box with a lid) until they suddenly switch to [sexual reproduction](#)," says Atle Bones, a professor of biology at NTNU.

"We have found that when they are below a certain size, they switch over to 'sex' mode and begin to mate. Controlling this sexual activity is important for biological research, because it means that you can control their proliferation," he says.

This kind of control provides scientists with an important tool for cultivating algae. They need to be able to control how the algae reproduce, so they can select for the properties they want. The commercial cultivation of algae requires the ability to combine features from different lines. Given a large "toolbox" with various algal lines, it is possible to produce combinations that are suited to the goals of commercial production and cultivation.

"Different combinations could provide the basis for the production of food, fine chemicals, bio-energy and materials," Bones says.

Algal rainmakers

Another important finding is that some [marine algae](#) make sulphur compounds that evaporate from the ocean.

In some cases, they serve as collection points (nucleators) for water along with other particles and produce [water droplets](#) that form clouds. The extent of this phenomenon is unclear, but if the wind pushes the clouds over the land, the droplets will eventually fall as precipitation.

That means that [algal blooms](#) can actually affect the weather.

"A large amount of algal production in the North Sea may also result in more rain in Norway," says Bones.

A bright future

Another area that Trondheim researchers are investigating is how some algae respond to light. Some algae create substances that may protect them from light, like a type of sunscreen.

Others have a sort of funnel that can regulate how much light they let in, by expanding or narrowing the funnel, or by controlling the density of the filters found in the funnel.

This research on diatoms, which is being led by NTNU researcher Gabriella Tranell, has already provided new knowledge that can be used in the development of solar cells.

Provided by Norwegian University of Science and Technology

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