

Slimy tunicates may be worth billions

December 9 2013



Researcher Christofer Troedsson of Uni Research is one of those who has finally started working on a large-scale pilot project for harvesting tunicates. In the background they are being lifted up in a container of fresh water. Credit: Camilla Aadland

Tunicates that were placed in the sea six months ago have now been harvested. These ocean weeds can become a new aquaculture adventure.

"Production has so far exceeded our greatest expectations," said researcher Christofer Troedsson of Uni Research.

Against a backdrop of mountains and fjords, eight people worked

intensively for two weeks to collect 30 tons of tunicates, which were then washed, pressed, dried and ground into animal and [fish feed](#).

"This is really exciting. We've gone from small-scale experiments to a large-scale pilot project," said Troedsson.

A nuisance for boat owners

He is one of those who saw the potential a few years ago of the slimy tunicates which have always been a nuisance for boat owners, including shellfish growers.

Tunicates are found in all the world's oceans. When their water content is removed, they consist of 55 percent protein, and they are also the only animals that produce cellulose. They could therefore in the long term be used for both feed and biofuel.

"This is about producing marine protein at the bottom of the marine food chain. Today we mostly use other types of fish that are high up in the [food chain](#). Tunicates eat algae and microorganisms that pass by.

In other words, we've taken an organism that usually represents a problem and turned it into something positive," said Thorolf Magnesen, Professor of Aquaculture at the University of Bergen (UiB).

Trying things out

The tunicates may be turned into a major industry. Uni Research and UiB have teamed up with the Research Council of Norway, which has provided funding of several million kroner, and BTO, which will help commercialise the product.



Thorolf Magnesen, Professor of Aquaculture at the University of Bergen, finds it very exciting to work with tunicates. Credit: Camilla Aadland

In Rongsundet in Øygarden researchers have placed various structures, such as ropes with plates and mesh to find out what will produce the most tunicates, and therefore the most biomass. But the first objective is to produce feed for ruminants and salmon in collaboration with the agricultural cooperative Felleskjøpet and the fish feed producer Ewos.

The tunicates are first brought on board a boat, washed in fresh water, and then 70 percent of the water is pressed out. The remains are sent to the company Weyland at Flesland where they are ground and dried into powder.

"This is an organism found in seawater all over the world. Tunicates improve the water quality by removing particles from the sea. There is a

huge potential in using this resource for feed. We're on the right track, but there's still a long way to go," said Magnesen.

He and his colleagues are trying out various methods of harvesting, washing and pressing.

"This is the first time we've used this equipment. So far it's been better than we expected," said Magnesen.

Troedsson agreed:

"The biomass production has exceeded all our expectations. Things are looking very good. Now we have to continue to work on the process to make it efficient," he said.



Tunicates grow in the sea. Christofer Troedsson and the other researchers are trying out different ways to get them to grow and be harvested. Credit: Camilla Aadland

They are hoping to get a pilot plant where the entire process from harvesting to the finished product can take place.

Lately, representatives of several media houses and the Research Council visited the plant at Øygarden. The Research Council has great faith in the investment they have made.

"A new industry is a possibility. Cellulose can be produced here and there's marine protein that's in short supply in the feed business," Ulf Visur Syversen, a senior consultant at the Research Council, told the Norwegian Broadcasting Corporation NRK.

Provided by Uni Research

Citation: Slimy tunicates may be worth billions (2013, December 9) retrieved 15 May 2024 from <https://phys.org/news/2013-12-slimy-tunicates-worth-billions.html>

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