

Many companies are already producing biodiesel from animal fats on a fairly large scale, but using oils from aquatic waste is an area which is largely unexplored

Biofuel from fishwaste – sink or swim?

Several headline-grabbing reports in the last few months have highlighted that commodities such as corn, rapeseed, palm oil and soya are often being grown and harvested in a way that could have negative economic, social and environmental effects.

Countries like Haiti, Bangladesh and Egypt have already seen riots as a result of soaring food prices.

One way to alleviate the pressure of biofuels and in part give the land back to food production, is to look at more sustainable alternatives which do not use up agricultural land.

Using fish waste to produce biodiesel is a very viable alternative. The use of animal waste and oil to produce biodiesel is not a new technology, but the adaptability of this technology to aquatic resources has only recently attracted public interest.

The process is relatively simple. The production of biodiesel starts with crushing the fish waste. This allows the oil to be extracted, which is mixed with methanol (roughly 9%) and caustic soda (in order to separate the glycerine from the biodiesel).

The fuel is then purified by adding manganese (a naturally occurring element in nature) and is then fit for engines. The by-product, glycerine, is sold to the cosmetic industry for the production of soap and the residues are made into fishmeal.



Source: @ogmar@bigstockphoto.com

With relatively little investment, local energy and transport fuel can be produced from fishwaste at very little cost

There are two main companies which are making significant contributions to local energy production through the use of fish residue/waste: Aquafinca in Honduras, Central America, which uses tilapia, and Agifish in Vietnam, which uses catfish waste.

Aquafina, which specialises in the processing of tilapia fish, is estimated to be producing over 15,000 litres of biodiesel from tilapia fish oil a day.

The biodiesel is then used to produce electricity at its production facility as well as running its vehicles. Aquafina operates a tilapia farming facility in the El Cajon dam as well as at Yojoa lake.

It also exports some 25 million kilograms of tilapia fish a year to the US market. Israel Snir, Aquafinca's CEO, has built the 15,000 litre

production plant at a cost of around \$200,000 (€138,263).

The leading Vietnamese catfish producer, Agifish, has teamed up with Saigon Petro and two local refrigeration firms and announced successful initiatives towards the large-scale production capacity of efficient biofuel from the residue of tra and basa catfish.

The director of Agifish Ngo Phuoc Hau says they have agreed to set up a joint venture holding the major stakes by Agifish and Saigon Petro. A plant with the production capacity of 30,000 tonnes of fuel a year is set to be established in An Giang province, and will use imported equipment.

A feasibility study and negotiations on investments and possible plant-sites are underway.

Potential for other developing countries

The technology used in the production of biofuels from fish residue/waste is transferable in many other parts of the world, including developing regions in Africa and other regions in Asia and Latin America. It can provide livelihoods, and produce local energy free from greenhouse gases.

With relatively little investment in already existing fish farms local energy can be produced at very little cost. Biodiesel from fish residue/waste could also promote more efficient use of aquatic living resources and generate additional income for fishers' and fish farmers' communities.

The technology could also be adaptable on large fishing trawlers. Alternatively fishing ports could form cooperatives where all the fish waste can be sold and oil produced, processed to produce biodiesel.

Although the size of the projects mentioned is fairly small, the potential for other coastal regions to explore similar plants is huge.

And as with waste cooking oil, fishwaste is a secondary product, so its use as a feedstock will be popular with environmentalists and politicians alike. ●

For more information

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