

Anger about biofuels

Cancer from your car exhaust? A study divides biofuel advocates

Biodiesel and rapeseed oil: Those sound like environmentally friendly fuels which protect not just the climate but also the health of motorists. Faith in the second statement, however, was recently shaken by the television programme Panorama on ARD.

One scientist stated that the risk of cancer from oilseed rape was ten times higher than from ordinary diesel. One press agency promptly reported 'concerns about biodiesel after bacteria experiments', even though the statement had been about straight vegetable rapeseed oil, not biodiesel.

Chemicals and lobbying groups alike regard this as a significant difference. The vegetable oil, which has been squeezed from oilseed rape has to be transformed into biodiesel by using an industrial process – esterification, during which some 10% of methanol is added. Proponents of straight vegetable oil biofuels and biodiesel are as divided as oil companies and biofuel advocates.

Representatives of the oilseed rape sector accused the scientists, after the Panorama programme, not of being too positive about diesel, but of 'partisan propaganda' which reports 'dubious results' favouring the biodiesel lobby. The scientists reject those accusations.

What really happened. Juergen Krahl, of the Technical Institute at Coburg studied tail-pipe emissions from a heavy vehicle motor run with rapeseed oil (straight vegetable oil). This was part of emissions testing done by the Federal Research Institute for Agriculture. A second study group looked at the effects of bacteria on the human genome. They used the 'Ames test', a routine method for studying chemical compounds.

The scientists found that rapeseed oil emissions were more dangerous than those from ordinary diesel. Krahl stressed, however, that this did not apply to biodiesel. He previously disproved the results of a Swedish study, published in 1999, according to which biodiesel was ten times as cancer-inducing as normal diesel. Instead, he argues that cell toxicity from biodiesel is lower than from ordinary diesel. Krahl therefore cannot understand why straight vegetable rapeseed oil [as a biofuel] will be exempt from tax until 2008, whilst biodiesel will be taxed 9 cents per litre from August 2006.

Biofuels are on the rise; they already account for a turnover of one billion Euros, with the lion's share coming from biodiesel. The cheaper straight rapeseed oil is also gaining a larger share of the market: 'Biodiesel production has been constant for years, at 75-85 cents' says Dieter Voegelin from the Confederation for Vegetable Oils. The price at the pump, however, keeps being increased in line with the price of petrol. "Some people are earning a fortune", he says.

Voegelin complains that the energy balance of biodiesel is worse than for straight vegetable oil, because of the additional industrial processing needed. There are also studies which suggest that rapeseed oil emissions are less cancer-inducing than those from ordinary diesel. He said that Krahl had used an unsuitable engine for his measurements.

Krahl admits that the engine in question had not been adapted for the use of rapeseed oil, but says: "We chose this engine because we already have a lot of data from other measurements". Edgar Remmele from the Institute for Technology in Straubing complains: "It is well known that the incomplete burning of any fuel will lead to higher emissions. Emissions should therefore always be measured from an adapted engine, after all ordinary diesel engines are not legally

allowed to use rapeseed oil". Adapting an engine to run on rapeseed oil costs between 3,000 and 4,000 Euros for a car. "This is the background to tax exemption", says Remmele. "Biodiesel is more expensive as a fuel, but the initial investment is lower". Many cars are already cleared for the use of biodiesel by the manufacturers. Using rapeseed oil, on the other hand, always requires adaptation, because the fuel is ten times as viscous as ordinary diesel. It forms larger droplets which burn less well, and it therefore has to be pre-heated. Furthermore "rapeseed oil takes longer to ignite in the engine, and therefore has to be injected earlier", explains Remmele.

The quality of rapeseed oil is also supposed to be important for emissions. The problem: The quality of this relatively new biofuel is not yet monitored by the state. Standards for biofuel from rapeseed oil have only been in force since 1st July. Remmele recommends: "Customers should check the quality assurance".

Krahl says: "Our supplier said that the quality was close to the new standards". He wanted his measurements to be "close to reality", and therefore used an ordinary engine: "After all, many people use rapeseed oil in an engine which has not been adapted". He stressed that there was a need for further research. There were still a lot of unanswered questions. Krahl has already been invited by the Ministry for Agriculture. Secretary of State Peter Paziorek (CDU) sees a need for further clarification: "We take this result very seriously. But we strongly doubt whether the results of the study are robust".

Axel Friedrich of the Federal Environment Institute (UBA) is already worried by Krahl's results. He demands that new fuels should be tested before they are allowed on the market: "This also has to apply for biofuels". Friedrich believes that support for biofuels is a mistake anyway: Oilseed rape monocultures need lots of artificial fertilizers. The energy balance of vegetable oil crops is mediocre, since only part of the plant is used for energy production. An ecological analysis by the UBA showed a clear result, according to Friedrich: There are no environmental reasons for supporting biodiesel"

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