

Ugly in Pink: Cosmetically Challenged Farmed Salmon!

**You can put lipstick
on a pig...**



But it's still a pig!

Ban 'Fake Tan' Farmed Salmon!

Farmed salmon with a 'fake tan' should be banned now to protect human health say the [Global Alliance Against Industrial Aquaculture](#). The ban must include the artificial colourings Canthaxanthin and Astaxanthin as well as the pesticide Ethoxyquin which is used to preserve artificial colours.

"Farmed salmon with added artificial colourings is purely cosmetic and a danger to human health," said Don Staniford of GAAIA. "Salmon farming needs to come clean and ban farmed salmon with a 'fake tan'. People need to take off their 'rose-tinted' glasses and see farmed salmon for what it truly is: a hazardous and poisonous product."



The wool is being pulled over the eyes of consumers who are unaware whether farmed salmon contains artificial colourings and chemicals linked to eye defects and cancer. In fact, almost all farmed salmon is artificially dyed, a process sometimes euphemistically called '[color finishing](#).'



Pink Poison

“[Pink Poison](#)” screamed the headline in the UK newspaper Daily Mail in 2003. “The Swiss company which produce Canthaxanthin even supply a color grading chart so that farmers can check they've got the shade right, rather like a decorator using a paint card,” continued the article. “But the chemical has been linked to potential eye damage, particularly among the young. Sun-tanning pills which featured the additive were withdrawn in the Eighties after fears that it could damage the retina, causing temporary blind spots.”



“Would you buy salmon whose flesh was unappetisingly grey?” [asks](#) Dr. Roderick O’Sullivan. “Only by adding the expensive colourant Canthaxanthin (E 161 g) to its food do farmed salmon retain their distinctive orange-pink hue. Any butcher adding dye to spruce up unappetising meat would quickly find himself in court, yet salmon-farmers choose their required tint from a graded shade-guide! Surely this is duping the consumer to buy a phoney imitation product, rather than genuinely-pink salmon flesh?”

Far from licking your lips at the prospect of farmed salmon, consumers should seriously think about the health risks. Adding artificial colourings to farmed salmon is ‘like putting lipstick on a pig.’



Synthetic Salmon

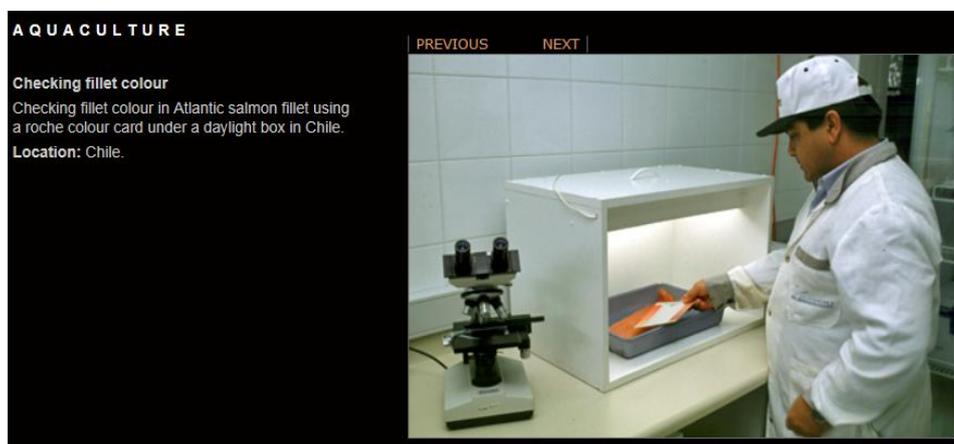
Not everything is all it seems with farmed salmon - [Buyer beware!](#) Farmed salmon has been given a monstrous make-over and is now so cosmetically challenged that it is a world removed from the natural beauty of wild salmon.



Farmed salmon are fed synthetic chemicals to artificially colour their flesh – including the same chemical (Canthaxanthin) which is used in [sun-tanning pills](#).

“Hoffmann-La Roche, one company that makes the dyes, Canthaxanthin and the more expensive Astaxanthin, from petrochemicals, offers salmon farmers the SalmoFan, a sort of paint wheel with assorted shades of pink, to help them create the color they think their customers want,” wrote Marian Burros in [The New York Times](#) in 2003.

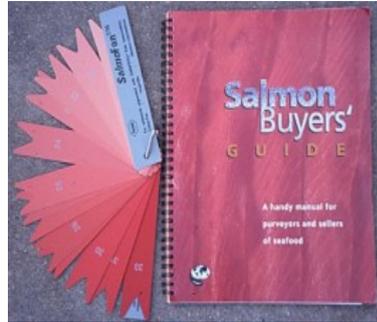
Canthaxanthin has been produced by chemical synthesis since [1962](#) – with Swiss pharmaceutical company Hoffman-La Roche aware of health risks since at least [1966](#). The [‘Roche Colour Card’](#) and Hoffman-La Roche ‘SalmoFan’ and ‘SalmoLineal’ are well known in the salmon farming industry. This [photo](#) shows a salmon farming worker checking the colour of farmed salmon with the ‘Roche Colour Card’.



Salmon farmers use a ‘[SalmoFan](#)’ to choose the colour of the farmed salmon – rather like the colour chart you use to pick the paint for your bathroom.



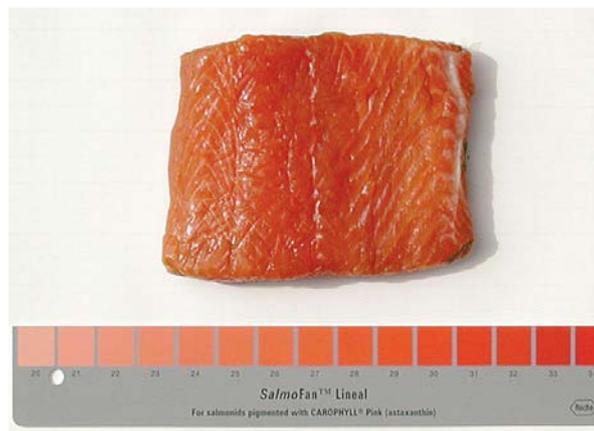
Salmon farmers can choose the colour they want for their salmon, using the 'SalmoFan'



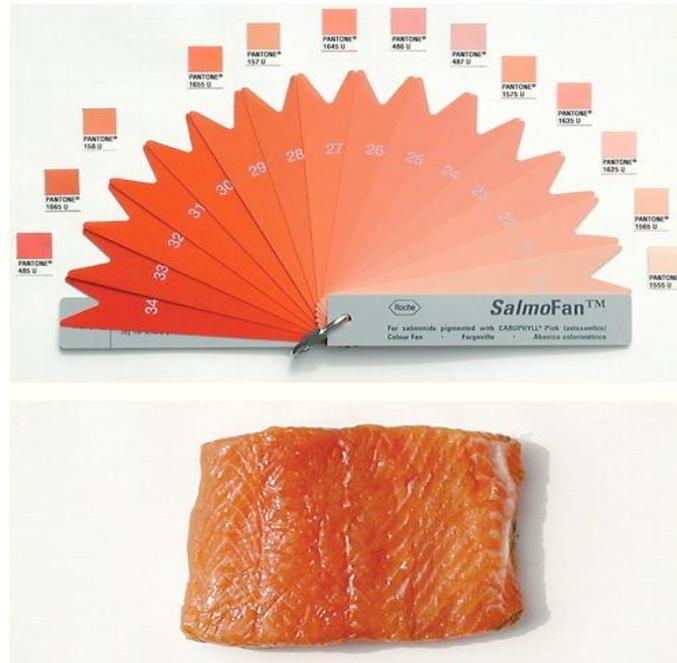
Or the colour chart to change the colour of your hair or choose your lipstick!



The ‘SalmoFan’ also comes in the shape of a ruler with shades of pink to red. The Dutch chemical company DSM market the ‘SalmoFan Lineal’ - a colour-by-numbers slide ruler which illustrates every shade of pink from “bubble-gum bright to dusty rose”:



Or as a fan - with the deepest red colours coded highest (people pay more for redder salmon).



This farmed salmon fillet, for example, is only #22 on the 'SalmoFan' colour chart and thus less attractive to consumers.



The Cost of Cosmetic Salmon

Since [consumer research](#) has found that people are [willing to pay more for redder salmon](#), companies have taken advantage by manipulating the flesh of farmed salmon to darker shades such as #33 and #34 on the 'SalmoFan' – in much the same way as women wear dark red lipstick as it is considered to be more attractive and alluring.



Like plastic Barbie dolls plastered in fake tan and red lipstick, farmed salmon won't be seen out in public without canthaxanthin.



Farmed salmon has expensive tastes – pink dyes can account for up to a third of all feed costs. For salmon farmers though it is a price worth paying. A consumer survey – “[Eye Appeal is Buy Appeal](#)” - conducted by Hoffman-La Roche found people are willing to pay much more for redder salmon

According to Hoffman-La Roche, consumers put a premium on colour and will pay more for flesh colour towards the higher end of the “Salmofan” spectrum: “Consumers perceive that redder salmon is equated to these characteristics: fresher, better flavour, higher quality and higher price. Even though colour does not impact on these characteristics. When asked about pricing, consumers felt that a salmon with a colour of 22-24 [on the “Salmofan”] should be less expensive and a well coloured salmon, 33-34, would be the most expensive.”

“Consumers use the color as a quality indicator and are willing to pay significantly more for salmon fillets with normal, or above normal redness, compared with paler salmon fillets,” concluded another [Norwegian study in 2005](#). “Without artificial coloring, farm-raised salmon would be difficult to market, and would command lower prices. Salmon with a color below 23 on the Roche Salmofan is difficult to sell at any price.”

Synthetic salmon is big business. According to an [article](#) published in 2000:

“Two Hawaii-based firms, Cyanotech and Aquasearch, produce astaxanthin by extraction from astaxanthin-producing microalgae, while agricultural behemoth Archer Daniels Midland (ADM) started manufacturing an astaxanthin marketed as "Salmon Pink" from a strain of red yeast, *Pfaffia rhodozyma*, grown on corn by-products. (In 1997 Igene, a small biotechnology firm based in Columbia, Maryland, filed a \$300 million federal lawsuit accusing ADM of stealing documents related to making a more readily absorbent astaxanthin--supposedly worth millions. The case is still pending.) In 1999, the Japanese beer company Kirin applied for a U.S. patent to protect a gene-cloning method of making astaxanthin that involves introducing a "gene cluster for astaxanthin biosynthesis" into *E. coli*. It's obvious that color finishing is big money and, sources say, one of the largest costs associated with salmon farming.”

An Eye For Colour

The ‘healthy glow’ of farmed salmon, however, carries a price. Canthaxanthin was banned in the United States in sun-tanning pills due to a health problem called ‘[Canthaxanthin retinopathy](#)’ or ‘[Canthaxanthin maculopathy](#)’ (the formation of ‘gold dust’ yellow deposits on the eyes retina). The US Food & Drug Administration classifies such products as “adulterated cosmetics” and [sent warning letters](#) to manufacturers referring to Canthaxanthin as “a color additive that is unsafe.”

Are tanning pills safe?

Research is now starting to show up tanning pills side effects. Consuming large amounts of canthaxanthin can damage the eyes as it will settle in the retina as well as the skin. This may cause the formation of crystals in the retinas which will affect your eyesight.



Other tanning pills dangers and side effects have been researched to include nausea and stomach cramps.

With regard to the effectiveness of tanning pills, it can take up to two weeks of consistent use in order to build up enough dye in the epidermis.

There is also the reverse problem. If you take too many pills and discover the skin is too pigmented it could take two weeks after stopping the pills for the epidermis to return to its normal shade.

One letter in 2005 [stated](#) that: “Canthaxanthin is a color additive. Color additives are deemed to be unsafe unless they are used in accordance with a color additive regulation that specifies the conditions under which the color additive may be safely used, including the purposes for which it may be used and the product category or categories to which it may added.”

Canthaxanthin Maculopathy

Canthaxanthin is an oral agent that enhances suntanning. Prolonged use over time can cause maculopathy. This appears as tiny glistening yellow dots arranged in a donut-shaped ring around both maculae. These deposits appear in the superficial retina (ganglion cell layer), and generally benign (Figure 30).



Figure 30. Canthaxanthin maculopathy. Note the ring-like crystalline deposits.

Canthaxanthin has also been reported to cause liver injury, a severe itching condition called [urticaria](#) (hives) and [aplastic anemia](#) according to the [American Academy of Dermatology](#).

“It all started innocently with a delicious salmon dinner after a day's sightseeing in the Canadian Maritimes,” [wrote](#) one (former) consumer of farmed salmon. “By midnight, I was itching inside and out, as if every blood vessel were dilated. Three days later, another salmon meal provoked an even worse reaction. That's when I discovered farmed salmon contain food dyes.”

Scientific Studies on Salmon Safety

Strip farmed salmon of artificial colourings and it is an unappetising dirty grey in appearance – more beast than beauty. Look beneath the mask and the use of Canthaxanthin in particular is fraught with dangers to public health. Canthaxanthin has been liberally applied to farmed salmon since at least the 1980s despite fears that it can cause cancer.

In 1989 scientists at the World Health Organisation (WHO) [warned](#) of links between canthaxanthin use and retinal damage in the human eye. The scientific evidence on canthaxanthin impacts on the eye is extensive and dates back as early as 1987. Hoffman-La Roche knew even earlier than that. In 1986 Hoffman-La Roche wrote to a customer pointing out that:

“In investigations originally carried out in Canada, and more recently in Germany, a number of people who had been taking Canthaxanthin tanning preparations at high levels, for prolonged periods of time exhibited as a side effect a so far unexplained phenomenon which the authors describe as glistening, apparently crystalline deposits in the inner layer of the retina of the eye, in particular, around the macula. In some of the subjects investigated, sensitive ophthalmological tests revealed, slowing down of light-darkness adaptation of the eye, though the clinical significance of this remains to be fully determined. This functional disturbance is reported to regress on discontinuation of the Canthaxanthin tanning

preparation. The deposits in the retina, however, have not been observed to regress, but remain in place without apparent impairment of vision, perception of color or field of vision”

The Independent on Sunday newspaper reported in 1990 that levels of canthaxanthin in farmed salmon on sale in UK supermarkets exceeded safe levels. In 1992 the Scottish Government admitted that: “some concern has been expressed over the possible carcinogenicity of canthaxanthin, used to produce coloured flesh in farmed salmon” (cited in [“Silent Spring of the Sea”](#)).

In 1995, the World Health Organization addressed the issue of the safety of Canthaxanthin. The WHO [reported](#) that ingestion of Canthaxanthin was “has been associated with a retinopathy in some individuals characterized by glistening, golden crystals in the inner layers of the retina.” Tests found that “there have been occasional complaints of dazzle or blurred vision.”

In terms of the potential carcinogenicity of Canthaxanthin, the report stated that: “In reviewing the results of two long-term/carcinogenicity studies in mice and rats, the Committee noted that these did not provide evidence of carcinogenicity but, at high dose levels, canthaxanthin produced liver damage in the rat.”



The WHO also [reported](#): “Additional long-term toxicity/carcinogenicity studies in rats confirmed that canthaxanthin, as previously observed, was hepatotoxic in this species, but provided no evidence of carcinogenicity.”

In 1997, the European Commission’s [‘Opinion of the Scientific Committee on Food on Canthaxanthin’](#) recognised the link between the consumption of Canthaxanthin and retinal problems.

The European Commission’s Scientific Committee on Animal Nutrition [reported](#) in 2002 that: “The use of Canthaxanthin in salmonids production leads to residues in the flesh that could expose some human consumers to amounts of Canthaxanthin in excess of the ADI (Acceptable Daily Intake).”



**Opinion of the Scientific Committee on Animal Nutrition
on the use of canthaxanthin in feedingstuffs
for salmon and trout, laying hens, and other poultry**

Adopted on 17 April 2002

The EC report also pointed out that since 1982 the levels of artificial colourings in the flesh of farmed salmon have more than trebled. The crystal clear conclusion is that farmed salmon is getting pinker and chemical companies are getting richer.

In 2003, following scientific studies linking the consumption of Canthaxanthin with eye defects, the European Commission ordered that the salmon farming industry reduce the levels of artificial colourings in the flesh of farmed salmon. "[Brighter eyesight or brighter salmon?](#)" was how the European Commission described the choice for consumers.

"Scientific assessments have shown that a high intake of canthaxanthins produces an accumulation of pigments in the retina, affecting the sight," David Byrne, the European Union's food safety commissioner, said in January 2003. "The use of this feed additive is purely cosmetic, to colour food and reduced levels of the additive will not adversely effect taste or quality."

"Its orangey-pinkish flesh glistens from countless supermarket shelves across the country but the highly prized salmon is about to undergo a chameleon-like change of colour," reported [The Guardian](#) newspaper. However, nearly a decade later consumers are still being conned by farmed salmon with a fake tan.

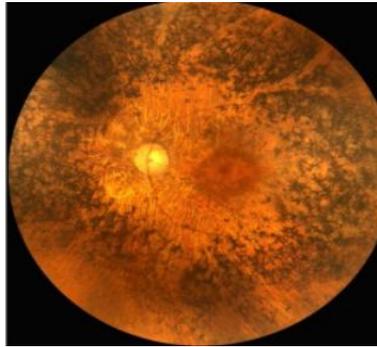
Rose-Tinted Salmon

Consumers appear colour blind to the health risks of artificial colourings – just like those still using sun-tanning pills.



"It's appealing to the eye," [said](#) Julie Edgar, communications director at Scottish Quality Salmon, in 2003 reacting to news that the European Commission had ordered a drastic reduction in permitted levels of Canthaxanthin in farmed salmon. "People traditionally

associate salmon with pink and red.” Artificial colourings may well be appealing visually but scientific studies have also reported health problems including damage to the retina. That’s one in the eye for you Julie!



[Canthaxanthin](#) comes complete with an ‘E-number’ (E-161g) and is approved for use as an artificial colouring for chickens (to colour the yolk) and for farmed salmon and trout in the European Union and the United States – but not in Australia or New Zealand. It is also [marketed](#) as Carophyll Red, CI Food Orange 8, Colour Index No. 40850, Roxanthin Red 10 and L-Orange 7g.

Canthaxanthin



What other names is Canthaxanthin known by?

Canthaxanthine, Carophyll Red, CI Food Orange 8, Colour Index No. 40850, E161, Roxanthin Red 10.

Another artificial colouring, [Astaxanthin](#), is known by various guises including Carophyll Pink, NatuRose and Natupink. The chemical company [BASF](#), for example, markets Astaxanthin as ‘[Lucantin Pink](#)’ and Canthaxanthin as ‘[Lucantin Red](#).’

Added Toxic Pesticide With Your Salmon, Sir?

Both Canthaxanthin and Astaxanthin are “[stabilized with ethoxyquin](#)” - a toxic pesticide manufactured by chemical giant [Monsanto](#). Ethoxyquin is banned in products for human consumption but allowed for use in feed.

Lucantin® Red

BASF
The Chemical Company

Active ingredient

Canthaxanthin dry powder 10%
4,4'-dioxo- β -carotene

PRD-No.

30041146 stabilized with ethoxyquin

Stability

The product should be stored cool (below 20 °C) and dry in unopened original packaging. Carefully close the packaging after partial amounts have been removed. In unopened original packaging, the product can be kept for 18 months.

Lucantin® Pink

BASF
The Chemical Company

Active ingredient

Astaxanthin dry powder 10%
3,3'-dihydroxy-4,4'-dioxo- β -carotene

PRD-No.

30053187 stabilized with ethoxyquin

Stability

The product should be stored cool (below 20 °C) and dry in unopened original packaging. Carefully close the packaging after partial amounts have been removed. In unopened original packaging, the product can be kept for 18 months.

The chemical company's [product data sheet](#) for Canthaplus 10% describes ethoxyquin as an 'antioxidant'.

PRODUCT DATASHEET

JYB Animal Nutritional Product

CANTHAPLUS® 10%

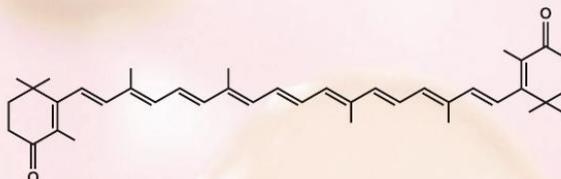
Product Code : 014211001

Description

It is a reddish violet, free-flowing powder. Each individual beadlet contains canthaxanthin in a starch coated organic matrix of polysaccharides which is protected by antioxidants-ascorbyl palmitate and ethoxyquin.

Chemical Structure

CAS Number : 514-78-3
Molecular Formula : $C_{40}H_{52}O_2$
Molecular Weight : 564.8
Chemical Name : 4,4'-dioxo- β -carotene



[Ethoxyquin](#) is an artificial chemical with an E-number (E324) and listed as a 'preservative'. Ethoxyquin is used in spices and artificial colourings to prevent colour loss. According to a [scientific report](#) published by the European Commission in 2002, Canthaxanthin leaks from salmon feed pellets so antioxidants such as Ethoxyquin are used in combination as preservatives to keep the colour.

Ethoxyquin is also used in pet foods to prevent the rancidification of fats although there have been health concerns including liver problems and cancer. Brenda Nelson of the Knowledge Network called Ethoxyquin '[The Hidden Killer in Your Pet's Food](#)'. In 1997, the Food and

Drug Administration in the United States [ordered](#) a reduction in the use of Ethoxyquin due to safety concerns in “lactating female dogs and possibly puppies.”

The use of Ethoxyquin raises serious consumer concerns. In 2003, there was a recall of Astaxanthin products containing Ethoxyquin in [Japan](#).

Ethoxyquin has been found in the flesh of farmed salmon since the 1970s. A [scientific paper](#) published in 1977, for example, detected residues in Norwegian farmed salmon. More recent [research](#) published in 2008 also found Ethoxyquin in Norwegian farmed salmon. “The mandatory 14 days depuration period prior to slaughtering of farmed salmon in Norway was not sufficient for complete elimination of Ethoxyquin-derived residuals,” wrote the report authors (more information is available [online here](#)).

Another [scientific paper](#) published in [2007](#) concluded that: “These Ethoxyquin residues may have higher toxicological effects for human consumers than the parent compound and therefore need to be studied in more detail.”

According to a [report](#) published by the Green Warriors in 2010, the use of Ethoxyquin (EQ) raises serious health issues:

Feeding salmon with feeds containing 107 ppm of EQ resulted in enlarged hearts. Feeding salmon with higher doses, up to 1800 ppm, led to enlargement of both heart and liver. Hearts were significantly larger in fish fed with 107 and 1800 mg per kilo feed than they were in fish fed diets not containing EQ. Salmon is starved before slaughtering. During the feeding period the levels of EQ and EQDM in fish rose gradually and were peaking when feeding stopped. Levels of EQ were higher than levels of EQDM when feeding was terminated. After two weeks of starvation only traces of EQ was found in fish muscle, while levels of EQDM were peaking. After starving of fish ended, there was 100 times more EQDM than EQ in the fillets. Berdikova (2007) also found 10 other metabolic by-products with unknown toxicology, most probably derived from EQ, of which 3 of these were shown to originate from EQ. Since EQ mainly is transformed into EQDM, it would be the most likely candidate compound for food safety tests and evaluation of possible health risks. In some cases metabolized by-products are less toxic, but in other cases far more toxic, than the compounds they were derived from.

Berdikovas (2007) research showed that EQ could be harmful even when small concentrations of EQ were added to feed, as a concentration of just 107 ppm led to enlarged hearts. Use of EQ as feed additives in fish for human consumption thus represents an unacceptable health risk until it is firmly proven that fish flesh contaminated by EQ, EQDM and other metabolites deriving from EQ does not represent a health risk. Such research must also seek to establish baselines for which concentrations of EQ and it's family of derivatives that can be allowed in fish presented for the consumers. Since the toxicity of EQ and it's metabolic by-products is not established scientifically, neither in humans nor in any animal group, NMF demands that the use of EQ as a feed additive for fish and other animals is banned immediately in order to ensure food safety and animal welfare.

EQ and EQDM were shown to pass the blood-brain barrier in salmon. This barrier prevents uncontrolled inflow of substances like hormones, glucose, foreign molecules and disease propagules. The blood-brain barrier thus acts as a shield to keep the brain safe, e.g. from substances that have potential neurotoxicological effects. This barrier consists of 4 physiological thresholds. Given that these substances manages to pass all thresholds in the blood-brain barrier of salmon, there is reason to believe, and fear, that the same could happen in humans.

A [scientific paper](#) published in 2011 examined the “potentially adverse effects of Ethoxyquin dimer, a major metabolite of the synthetic antioxidant Ethoxyquin in salmon muscle.” Ethoxyquin expert, Dr. [Victoria Berdikova Bohne](#), was also featured in the Norwegian newspaper Bergens Tidende in March 2011 expressing safety concerns.

Laks føres med sprøyt

Kurt Oddekav og Miljøvernforbundet krever totalforbud mot det syntetiske stoffet ethoxyquin. Ingen vet i dag om stoffet laksen føres med, er farlig for mennesker.

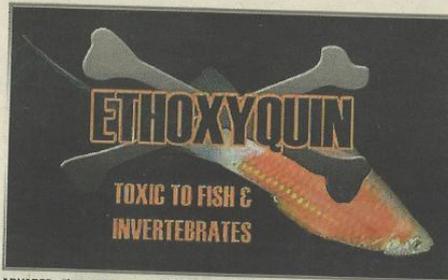
OLE ERIK KLOKSEIDE
CHRISTIAN LURA
ØRJAN DEISZ (foto)
ole.erik.klokseide@bt.no

Ethoxyquin (EQ) ble opprinnelig laget som sprøytemiddel for å unngå brune flekker på epler

fakta

Ethoxyquin (C₁₄H₁₉NO)

- En kunstig antioksidant som brukes blant annet i fiskemel.
- EQ forhindrer fett fra å harskne, og det forhindrer melet fra å utvikle varme og eksplodere under frakt.
- Det er tillatt med 150 mg/kilo kunstige antioksidanter i fiskefôret. Norge har ikke bestemt en pvre grense for restmengder av kunstige antioksidanter i selve fiskekjøttet. Flere land, blant annet Tyskland og Japan, har innført en slik grense.
- Det meste av ethoxyquinen omdannes til ethoxyquin-dimer (EQDM) i fisken.



ADVARER: Flere miljøvernorganisasjoner over hele verden advarer mot ethoxyquin og vil ha stoffet forbudt i blant annet fiskefôr.

–Vi vet ikke i dag om EQDM er farlig på noen måte. Ingen har forsket på problemstillingen, sier Bohne. Hun jobber i dag i Nofima, et privat forskningskonsern rettet mot akvakultur.

Nå jobber Bohne med å finne metoder som kan få industrien til å velge alternativer til ethoxyquin.

–Men det går tregt med kundene, sier hun.

Forsvinner ikke

Forskning på EQDM har så langt bestått i å undersøke fisken etter 14 dagers sultefôring. Derfor vet man fortsatt lite om

More details are available via [‘Massiv bruk av pesticidet ethoxyquin i for til oppdrettsfisk’](#).

Colour Loss

Without preservatives such as Ethoxyquin, the artificial colours in farmed salmon feed would run like mascara.



In 2007, chemical giant DSM unveiled a new look for colour salmon with the launch of [‘CAROPHYLL® Stay-Pink’](#). “With CAROPHYLL® Stay-Pink, DSM has developed a breakthrough technology that addresses the issue of the processing stability of astaxanthin,” claimed a [press release](#). “This unique approach leads to diminished losses during processing and storage.”

If the claims are to be believed, CAROPHYLL® Stay-Pink could be the salmon farming industry’s answer to ‘no run mascara.’



Without artificial colours added to the feed, farmed salmon would be an unappetising grey colour – rather like a supermodel stripped bare of her make-up.



[Photo: Kate Moss with and without make-up]

Added Bacteria With Your Salmon, Sir?

If salmon farmers want to continue to colour their salmon then there are ‘natural’ alternatives. The Norwegian Government-owned company Cermaq (via their feed subsidiary EWOS) offers customers a “natural pigmentation” called [Panaferd](#). EWOS [claimed](#) in 2010:

“Panaferd is a naturally derived alternative to synthetic astaxanthin and producing naturally pigmented fish at a competitive cost. Panaferd contains the dried cells of *Paracoccus carotinifaciens*, a soil-dwelling bacterium which naturally contains carotenoids. The bacteria are grown by fermentation and have been selected to yield high carotenoid concentrations but have *not* been genetically modified. Although astaxanthin is the principal pigment within Panaferd, it also yields significant amounts of natural adonarubin and canthaxanthin, both of which provide additional contributions to pigmentation.”

In 2007, a ‘[Scientific Opinion](#)’ on the safety of Panaferd by the European Food Safety Authority (EFSA) stated that Panaferd is “a non-genotoxic additive of very low acute and sub-chronic toxicity.” However, EFSA also stated that “Panaferd-AX is considered as an eye irritant”. “The possible deposition of crystals of adonirubin in the retina, similar to that occurring with canthaxanthin, cannot be excluded and has to be considered as worst case scenario,” stated EFSA. Toxicity tests on rats were also performed: “Animals exposed to

Panaferd-AX showed increased respiratory rate, laboured respiration, hunched posture, piloerection, fur staining and wet fur,” reported EFSA.

Pink Poo

Another side-effect of using artificial colourings on salmon farms is seepage into the wider environment. The European Food Safety Authority [reported](#) in 2007 that only 15% of Canthaxanthin is absorbed and retained in the flesh of farmed salmon with 70% excreted in faeces.

A [report](#) by the European Commission published in 2005 concluded that: “As astaxanthin is insoluble in water and susceptible to oxido-reduction it will mainly bind to faeces and sink to the seabed.”

Due to the lack of scientific studies, it is not clear what shade of pink on the ‘SalmoFan’ the shit under a salmon farm is coloured.

Cheap and Nasty

Cheap and nasty farmed salmon leaves a bad taste in the mouth. The crux of the colouring issue is cost: the reason salmon farmers use synthetic colourings is to boost market price – and also because synthetic colourings are cheaper than natural ones.

A scientific paper published in 2011 [stated](#): “The biological astaxanthin source is more expensive than the synthetic source, resulting in about 5,5% higher production cost of fish produced with the “organic” colorant Ecotone™ as compared to fish produced with the synthetic source of astaxanthin (Lucantin® Pink).”

Moreover, salmon farming companies prefer to use Canthaxanthin because it is cheaper than other artificial colourings such as Astaxanthin (E161j). As leading fish feed company Biomar [admitted](#): “whilst both are expensive, Canthaxanthin is the cheaper.” By using Canthaxanthin salmon farming companies are saving money but sacrificing public health.

Lawsuits & Labelling:

Labelling laws in the United States force retailers to display ‘Color Added’ labels on farmed salmon.



However, labelling laws around the world are not as strict as in the United States and most consumers are unaware that the farmed salmon they are eating contains artificial colourings.



Farmed salmon is often labelled as 'Natural' even though it contains artificial colourings.



Even in the United States some retailers fail to follow the labelling laws prompting various [lawsuits](#) and legal actions. In 2003, for example, a [class action lawsuit](#) was filed against the three largest grocery chains in the United States: Safeway, Albertsons and The Kroger Company. The lawsuits charged that the chains, which accounted for over 6,000 stores in more than 30 states across the U.S., deceived consumers by failing to comply with federal law requiring disclosure of artificial coloring in farm-raised salmon.

The U.S. retailer Kroger now display's '[Color Added](#)' labels like this on its farmed salmon:



Other legal action followed with retailers losing a [class action](#) lawsuit in California in 2009.

Supermarkets Lose Colored-Salmon Case

Justices rule that citizens can sue to force markets to label farmed salmon as artificially colored; Federally required disclosure is rare

by Craig Weatherby



The feed given most farmed salmon contains synthetic colorants, to produce the orange-red hues shoppers expect to see in this popular fish.

Absent this artificial intervention, the flesh of farmed salmon would be an unappealing gray.

U.S. Food and Drug Administration (FDA) regulations allow salmon farms to feed their stocks two carotene-class colorants —

astaxanthin (as-tuh-zan-thin) and canthaxanthin (can-thuh-zan-thin) — as long as customers are notified via signs at the point of purchase.

But few supermarkets comply with this disclosure requirement.

And until a consumer group sued California's biggest supermarket chains in 2003, very few shoppers even knew that most farmed salmon contain artificial colors.

The suit accused supermarkets of violating federal food-labeling rules, and it sought to require retailers to post notices on farmed salmon fed synthetic chemical colors.

Farmed salmon is so contaminated with chemicals including artificial colourings that 'Farmed & Dangerous' took out the following advert against Safeway in the United States:

With all the chemicals in Safeway's farmed salmon,
you might as well eat the packaging.



Farmed salmon just isn't natural.* Tell Safeway to stop selling it.

To find out more, please visit
www.FarmedAndDangerous.org

According to the Environmental Protection Agency and studies published in the journals of Science and Environmental Science & Technology. To view the studies, visit www.salmonstudy.org and www.albany.edu/life/salmonstudy/. Paid for by the Coastal Alliance for Aquaculture Reform.

A Global Ban?

In May 2012, Canada's largest grocer (Loblaw's) [announced](#) a ban on all artificial colours from its signature President's Choice line of products by the end of 2012. "We hear more and more concern from consumers about artificial flavours and colours and we just think it's the right thing to do," said Ian Gordon, senior vice-president of Loblaw Brands.

According to [The Globe & Mail](#): "Artificial flavours and colours have emerged as one of the biggest nutritional bogeymen in the eyes of many Canadian consumers in recent years after some studies have linked their consumption to everything from allergies to potential behaviour problems or hyperactivity in children, and possibly even some types of cancer."

If one retailer can ban artificial colours then every retailer on the planet should. At the very least salmon farmers should come clean and inform consumers that farmed salmon contains artificial colourings. GAAIA will campaign on this issue until every supermarket and restaurant follows suit and bans artificial colours from farmed salmon!

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