

Pesticides and contaminants in organic products

lach : bruns

Taking a closer look.

***“True and real
contaminants”***

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What are “*true and real contaminants*”?

REGULATION (EEC) No 315/93 laying down Community procedures for contaminants in food

'Contaminant' means any substance **not intentionally added to food** which is present in such food **as a result of the production** (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), **manufacture, processing**, preparation, treatment, packing, packaging, transport or holding of such food, **or as a result of environmental contamination**. [...]

→ Not intentionally, result of the process-chain
or result of environmental contamination !

Sounds
reasonable.



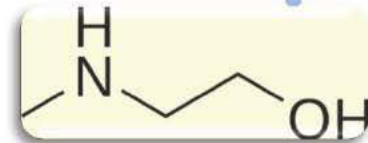
What are “*true and real contaminants*”?

Conclusion:

- Contaminants: Not (applied) intentionally.
- Contaminants: Result of the process-chain or result of environmental contamination!
- Not the chemical properties are relevant, but the way how the substances entered into the food chain.
- In these terms: chemical-synthetically pesticides could also be contaminants if they were not applied intentionally (but entered by environmental pollution).
- This presentation: Refers to Contaminants **which are not pesticides!**

UNINTENTIONALLY

Example I: Ethanolamines



A) Diethanolamines (DEA)

- Emulsifier and carrier substance in wax formulations (f. ex. to make fatty fertilisers or plant strengtheners more liquid with help of the carrier substances).
- Also present in some cleaning and (hand) disinfecting products.

B) Triethanolamines (TEA)

- Also Emulsifier and carrier substance, allowed in Germany for use as co-formulant in plant strengtheners and plant protection formulations.
- Attention: When TEA is synthesised, also DEA is present in the final formulation (side product).

Example I: Ethanolamines

BUT:

Ethanolamines like TEA and DEA are often not labelled or indicated in the corresponding product data sheets. So the users of the products (plant strengtheners, disinfectants etc.) DO NOT know that DEA / TEA is present and can result in analytical findings in the end-product (food).

So what is the problem now?



Example I: Ethanolamines

According to national (German) authorities:

Emulsifiers and carrier substance are ADDITIVES. And for Additives an EU-Regulation (1333/2008) exists, saying: Only allowed additives (listed in this regulation) can be present in/on food products.

→ As DEA and TEA are NOT permitted according to this regulation, they are not allowed in/on food products.



Conclusions: Ethanolamines

DEA and TEA are

- *not (applied) intentionally.*
- ... *consequences of the process-chain*
- ... *are not labelled / listed in product specifications*
(f. ex. of plant strentheners, disinfectants) although they
are present.
- *This problem refers to organic and conventional products.*



Example II: Alkaloides



Pyrrolizidinalkaloides (PAs):

- *Weeds, which are and look similar to the cultivated plants (like wheat f. ex.). Weeds contain PAs in toxicologically relevant concentrations. → Too many weeds in the harvested plants → Toxicological risk increased.*
- *Affected products (selection): Wheat, Salads, Honey, Herbs and Teas. More than 600 crops are affected by PAs.*
- *Challenge: Analytical results are not representative as PAs are not distributed equally in the harvested crops.*

PYRROLIZIDINALKALOIDES (PAs)

Occurrence: in ca. 6000 plant species (examples)

***Composite
plants***



Pulses



Orchids



Borage

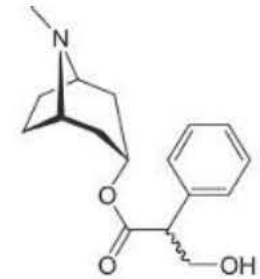


Ragwort

Example II: Alkaloides

Tropanalkaloides (TAs):

- Same principle as PAs: → Too many weeds in the harvested plants → Toxicological risk increased.
Examples of TAs: Hyoscyamin, Scopolamin and Atropin
- Affected products (selection): Cereals (Buckwheat), Legumes (Lupines), oilseeds (sunflower), berries, small fruits.
- Challenge: Analytical results are not representative as PAs are not distributed equally in the harvested crops.
TAs have a high toxicological risk (small quantities!)



Atropin

Tropanalkaloides - botanically



Fotos: Pixabay.com



Conclusions: Atropins

PAs and TAs are

→ *not (applied) intentionally.*

UNINTENTIONALLY

→ ... *consequences of the process-chain*

They are natural phenomena and thus it some kind of “fight against nature” in order to avoid their presence.

Analytical results are not representative as PAs and TAs are not distributed equally.

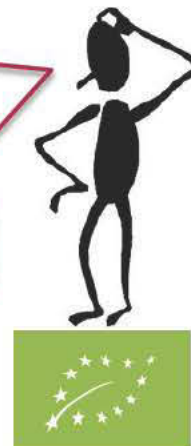
inhomogeneous

Conclusions: Atropins



How can I safe my food products from such risks?

I am not sure but the „*pesticide option*“ should **NOT** be a solution for us. Why we are organic then?
I think there is NO straightforward “organic” solution ahead. We need **NEW organic** approaches. Maybe we have to think about completely new ways – making organic products more **unique and valuable.**



Overall Conclusions (1 of 2)

The issues related to contaminants are demanding and have to arrive in the mind-sets of all stakeholders in the food market:

Regulatory Risk

- ① → Re-thinking of appropriate regulatory aspects like a practical and meaningful definition of contaminants.
- There are already enough real risks to be faced by organic companies.
- There is NO NEED for additional, “regulatory-administrative” risks → Make Regulations fit for substances like contaminants – and not the other way round (make substances fit for Regulations).

Overall Conclusions (2 of 2)

True and real contaminants are demanding and have to arrive in the mind-sets of all stakeholders in the food market:

- ② How to deal with natural risks like toxicological relevant weeds? Here the organic market has to face **real natural** risks, which cannot be solved “theoretically” by regulations. New ways of thinking and approaches are necessary in order to ensure food safety WITHOUT application of pesticides.



Natural
Solutions

Back to nature and “handmade” harvest?
Other Alternatives?