



ASTA Convention Amelia Island

Contamination in Spices
A European perspective.

The speaker

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- Quality Auditor
- Cannamela
- Italy's brand leader – Retail sector
- Part of the Montenegro food group



CANNAMELA

The brief

- What are the key contaminants that are important to EU legislators or customers?
- Could this have an impact on material coming into the USA?

Contaminants

Mycotoxins

MCPDs

Pesticide MRLs

Microbial agents

Heavy Metals

ECH residues

Processing aids

Irradiation

Acrylamide

Illegal colours

Dioxins

Heavy Metals

Topics

- Heavy metals
- Mycotoxins
- Biologically Active Principles
- Industry 'chemicals'
- Environmental colours
- Some 'interesting pictures'

Heavy metals



Heavy metals

- EU Legislation covers Lead, Cadmium and Mercury
 - Pb 0.05 – 1 ppm dependant upon food type
 - Cd 0.05 – 1 ppm dependant upon food type
 - Hg 0.5 ppm (fish products only)
- Typical national legislation and standards
 - Lead 10 ppm
 - Arsenic 1 ppm
 - Copper 20 ppm
 - Zinc 50 ppm
 - Tin 200 ppm

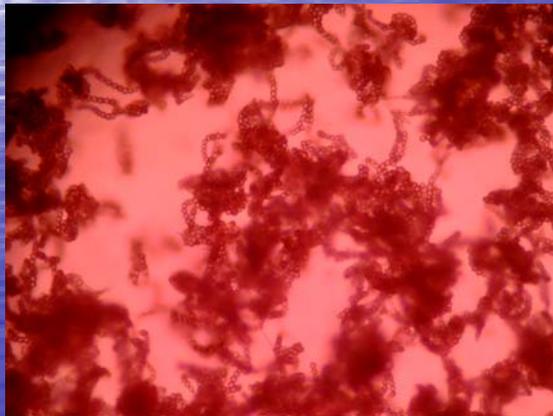
Heavy metals

- Results
- In general there is no major concern at present.
- However there is discussion about lowering limits
- There are trends we should be aware of

Heavy metals

- Areas to watch
- Batteries – Pb, Ni, Cd, Hg
 - Battery consumption increasing (4.2 m t.p.a. Pb)
 - Battery disposal control at origin (UK 75m p.a.)
- Transport – Pb
 - New highways going through traditional herb growing close areas (where country still uses leaded fuel)
- Natural ores
 - Tin mining in Indonesia

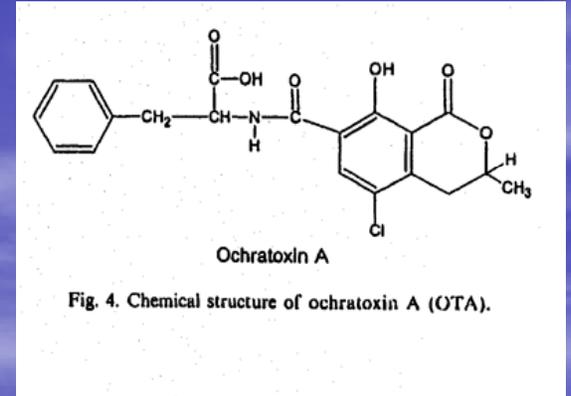
Mycotoxins



Mycotoxins

- Aflatoxin
- EU legislation
 - Products – Nutmeg Black Pepper
 - Paprika Chilli Turmeric Ginger
 - 10 ppb total aflatoxin
 - 5 ppb B1
- National legislation – e.g. Germany
 - 4 ppb total 2 ppb B1
 - for no EU specified products
- Lobbying is underway to lower current levels

Mycotoxins



- Ochratoxin (OTA)
- EU legislation does not set any limits for spices
- Retailer pressure has already prompted one product recall so the pressure is on
- EU has just set sampling plans for ochratoxin in food and spices are mentioned
- No official method
- Spain has been very active

Mycotoxins

- Spain is the main growing country in the EU that could be affected
- They know all about risk assessment

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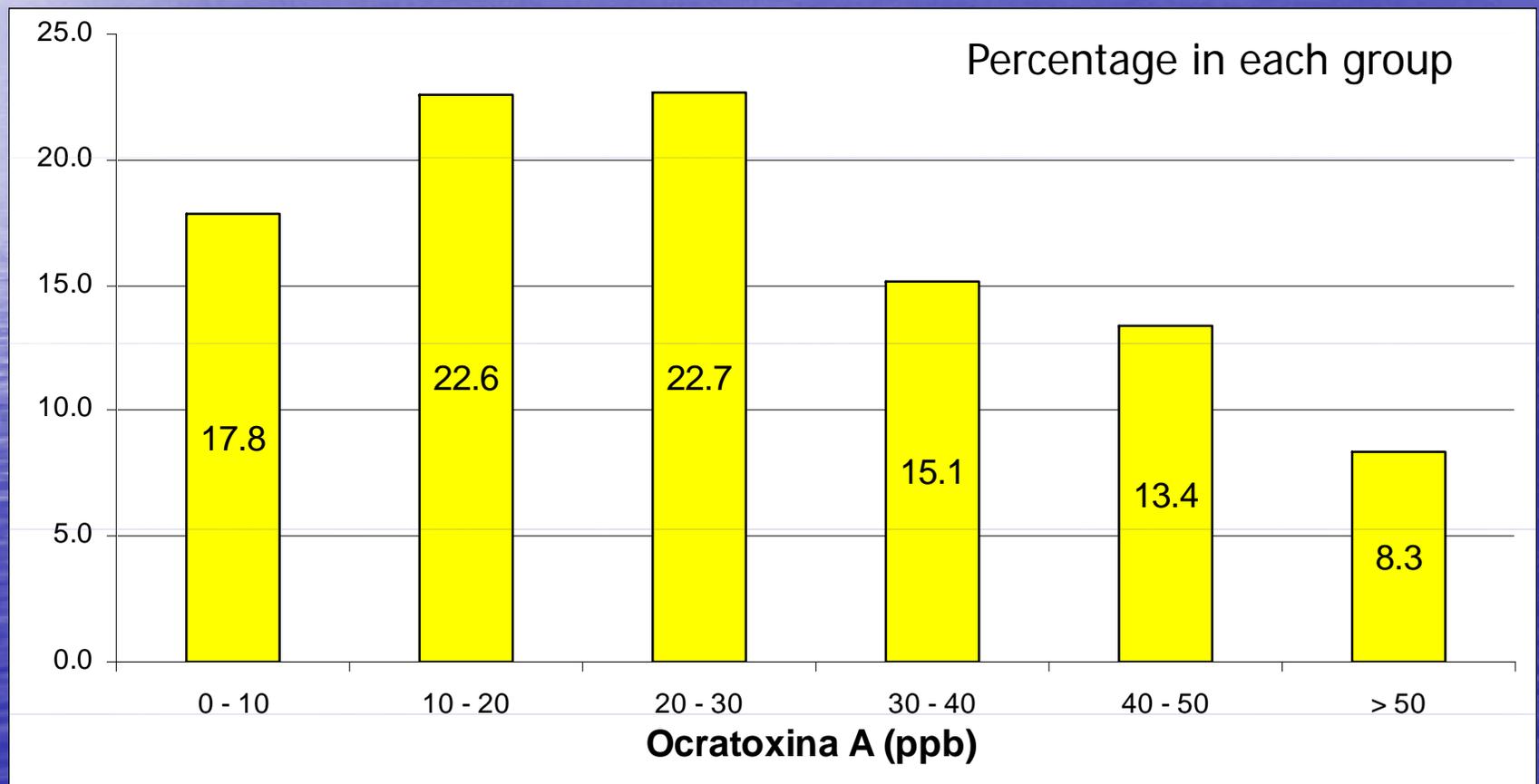


AFEXPO ochratoxin results

- Paprika from several origins was tested
- > 2000 samples tested
- Results are still being collated
- 5 years ago 1000ppb OTA was common
- At present a level of 50ppb would be required to ensure minimal disruption to the supply chain.

Ochratoxin results (company stats)

- From 1990 samples tested



Ochratoxin results (company work)

- Capsidiol phytoalexin is an antifungal compound, and is found in Paprika
- It appears to protect the plant from OTA generation
- To date no OTA has been found during plant growth
- OTA seem to be produced during the early drying stages when the product still has a high A_w



Biologically active principles (BAPs)

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- The chemicals
- Methyl Eugenol
 - e.g. Cloves, Basil, Nutmeg, Star Anise etc.
- Methyl Chavicol
 - e.g. Basil, Chervil, Tarragon, Fennel, Star Anise etc.
- Safrole
 - e.g. Cinnamon / Cassia, Nutmeg, Star anise etc

BAPs continuation

- The research programme cost > US\$160,000
- It has given Tarragon the all clear
- It should challenge the 'BAPs' legislation and the way in which this type of legislation is drafted
- But if the legislators do not respond to this, we need to find other ways of sourcing the required work on the other chemical / product combinations.



Industry 'chemicals'

Industry 'chemicals'

- Those product that are used in our industry that are not declared on the label, or perhaps not known by our customers
- Those chemicals / processes / practices that could be misrepresented by the media

Industry practices

What the press
might say!

**DAILY
BUGLE**

16th Jan 2007

**Acme Spices adding
bacteria and toxic chemical
to white pepper.**

Industry practices

What the press might say!

DAILY BUGLE

16th Jan 2007

Acme Spices adding bacteria and toxic chemical to white pepper.



**Owner says
'It's a fair cop
I should have
known
better'**

Industry 'chemicals' investigations

- Bleaching
- Sulphination
- Oil dressing
- Pesticide synergists
- Fermentation bacteria
- Ethylene Oxide (ECH)
- Irradiation

Industry 'chemicals' investigations

- It seems it is only a matter of time before these processes / practices are likely to be challenged
- It's time for us to investigate their use, correlate relevant information and be able to support those practices that are acceptable
- For unacceptable practices we should educate and find alternatives that are acceptable to all concerned

Environmental colours



Environmental colours

- During the 'Sudan red crisis' the list of potential colours grew every few months
- The issue was always about deliberate adulteration
- Now that we are testing to ppb levels it appears that some contamination could be associated with 'environmental' colours

Environmental colours

- Dyes used in packaging
- Exhaust from pumps or tractors
- Dye in pesticides / fertilisers / fungicides
- Dye as tamper seal
- Lubricants
- The list may will be longer

Environmental colours

- Whether true or not the following products have all been identified as having the potential to be coloured
- Cassia - Brown
- New crop fennel – Green
- Star Anise – Aurimine

Environmental colours

- We need to continue capturing data
- Educate and remove bad practices where they occur
- Lobby appropriate bodies that complete absence of a 'dye' may not be possible, especially in the short term

Summary

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- Everyone knows that newspapers will pay big money for a good story

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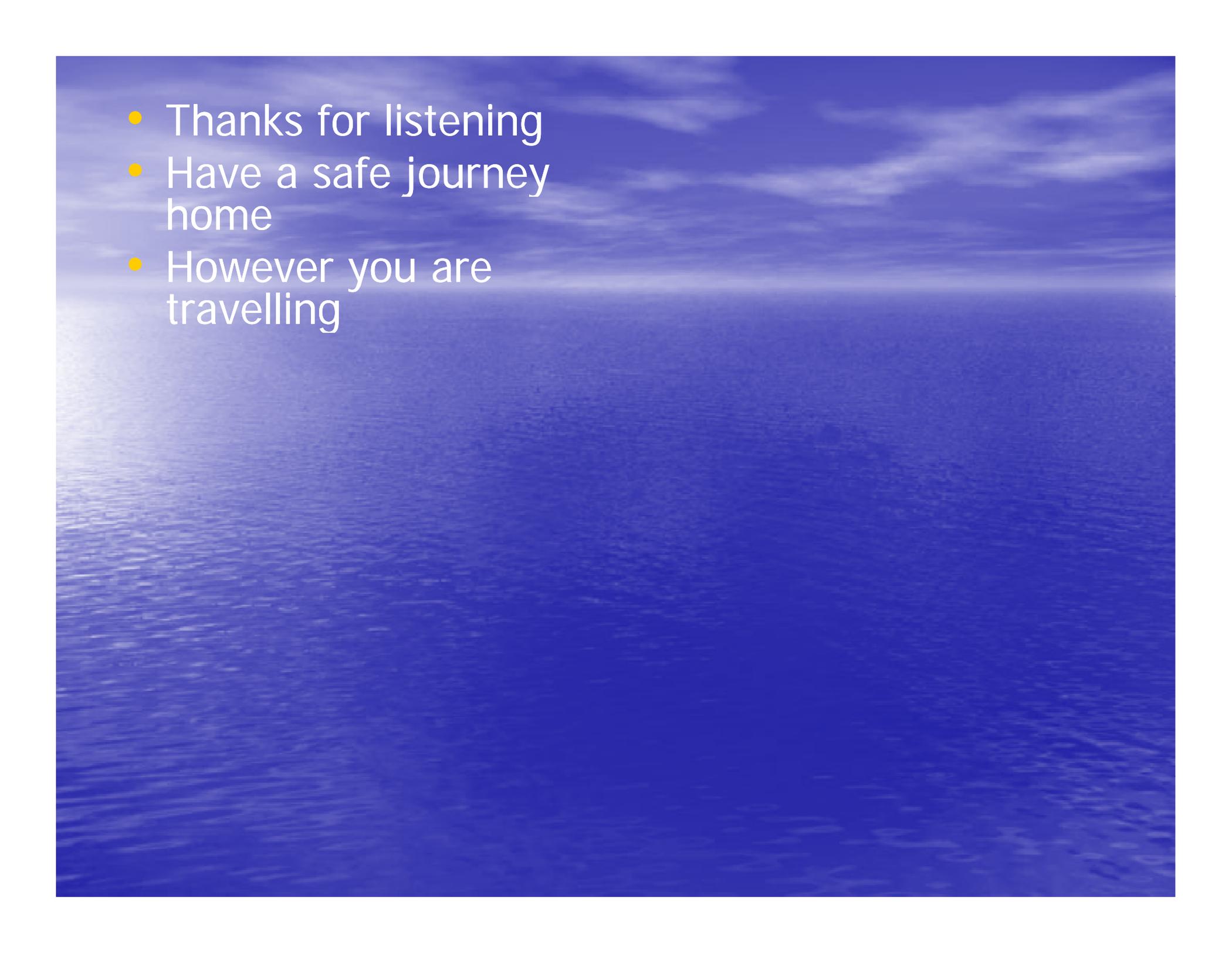


Summary

- It appears to be 'easy' to get 'public money' to investigate a potential 'chemical' problem
- The food industry is an emotional area and funding requests get good support
- These investigations seem to stop once a 'potential' problem has been identified
- It then falls to the industry affected to respond or fight this initial work
- Much of this work, such as toxicology studies, cost huge amounts of money

Summary

- Our products will come under increasing scrutiny
- As food ingredients manufacturers we will be on the receiving end of every food related 'scare' that arises
- We need to prepare a better strategy to handle all future 'problems'

- 
- Thanks for listening
 - Have a safe journey home
 - However you are travelling

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