

# Dietary Exposure to Aflatoxin B1 and Its Precursor Sterigmatocystin from Traditional Meat Products in Croatia

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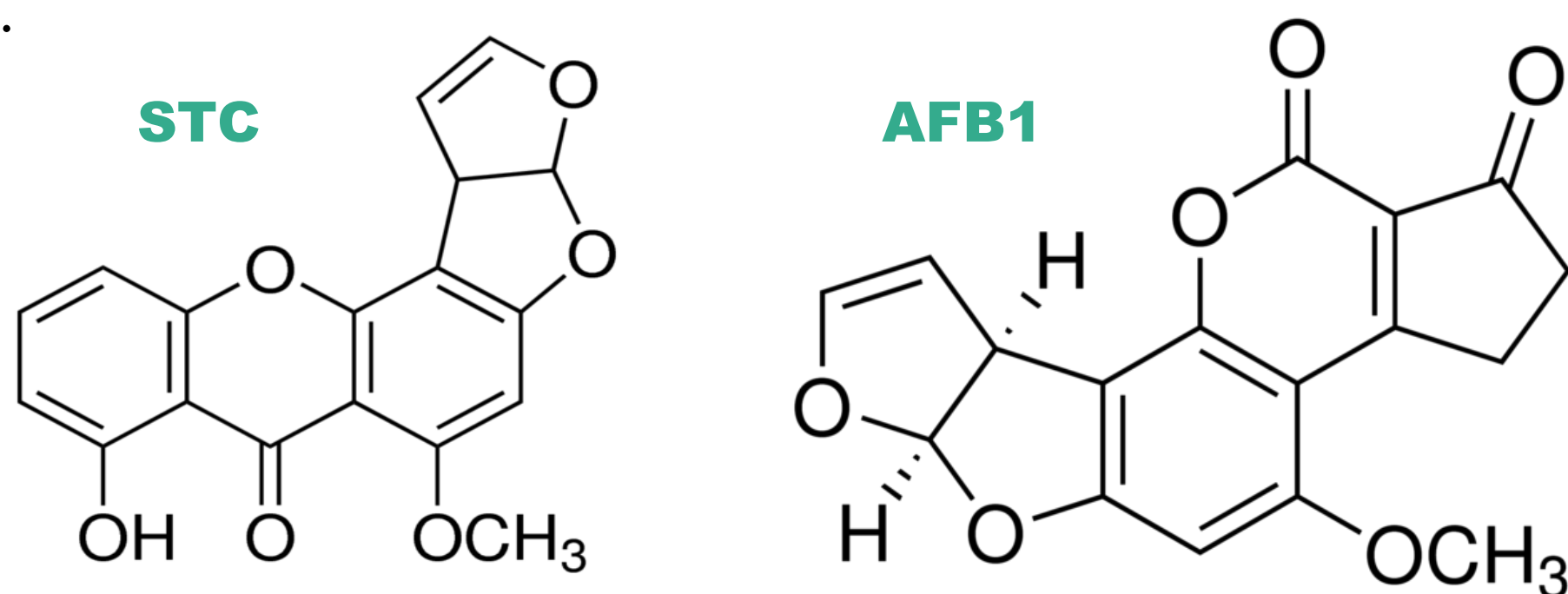
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## INTRODUCTION & AIM

This study assessed the exposure of the Croatian population to aflatoxin B1 (AFB1) and its precursor sterigmatocystin (STC) through traditional meat products (TMP). These non-thermally processed products are susceptible to mould growth during ripening, which can lead to mycotoxin production. Contamination may also arise from spices or carry-over from animals fed contaminated feed (1). AFB1 is a known human carcinogen, while STC is a possible human carcinogen (2,3).



## METHOD

### DRY-FERMENTED MEAT PRODUCTS

The study analyzed 280 Croatian traditional dry-fermented meat samples produced on family farms.



### MYCOTOXIN ANALYSIS

AFB1 and STC were analysed using the liquid chromatography-tandem mass spectrometry (LC-MS/MS) method (4)

### FOOD CONSUMPTION DATA

Food consumption data in Croatia were collected by the Croatian Food Agency in 2011–2012 from 2,002 adults (ages 18–64) via face-to-face interviews using the 24-hour recall method.

### EXPOSURE ASSESMENT

Human exposure was assessed by calculating the estimated daily intake (EDI) of contaminants (5) using the following formula:

$$\text{EDI } (\mu\text{g/kg bw/day}) = \frac{(\text{individual food consumption (g/day)} \times \text{average contamination level } (\mu\text{g/kg}))}{\text{body weight (kg)}}$$

## REFERENCES

1. Pleadin et al., Processes, 9 (2021) 2122.
2. IARC. IARC Monographs (2022).
3. IARC. IARC Monographs (1987).
4. Lešić et al., Toxins, 14 (2022) 476.
5. EFSA. EFSA J., 8 (2010) 1557.

## RESULTS

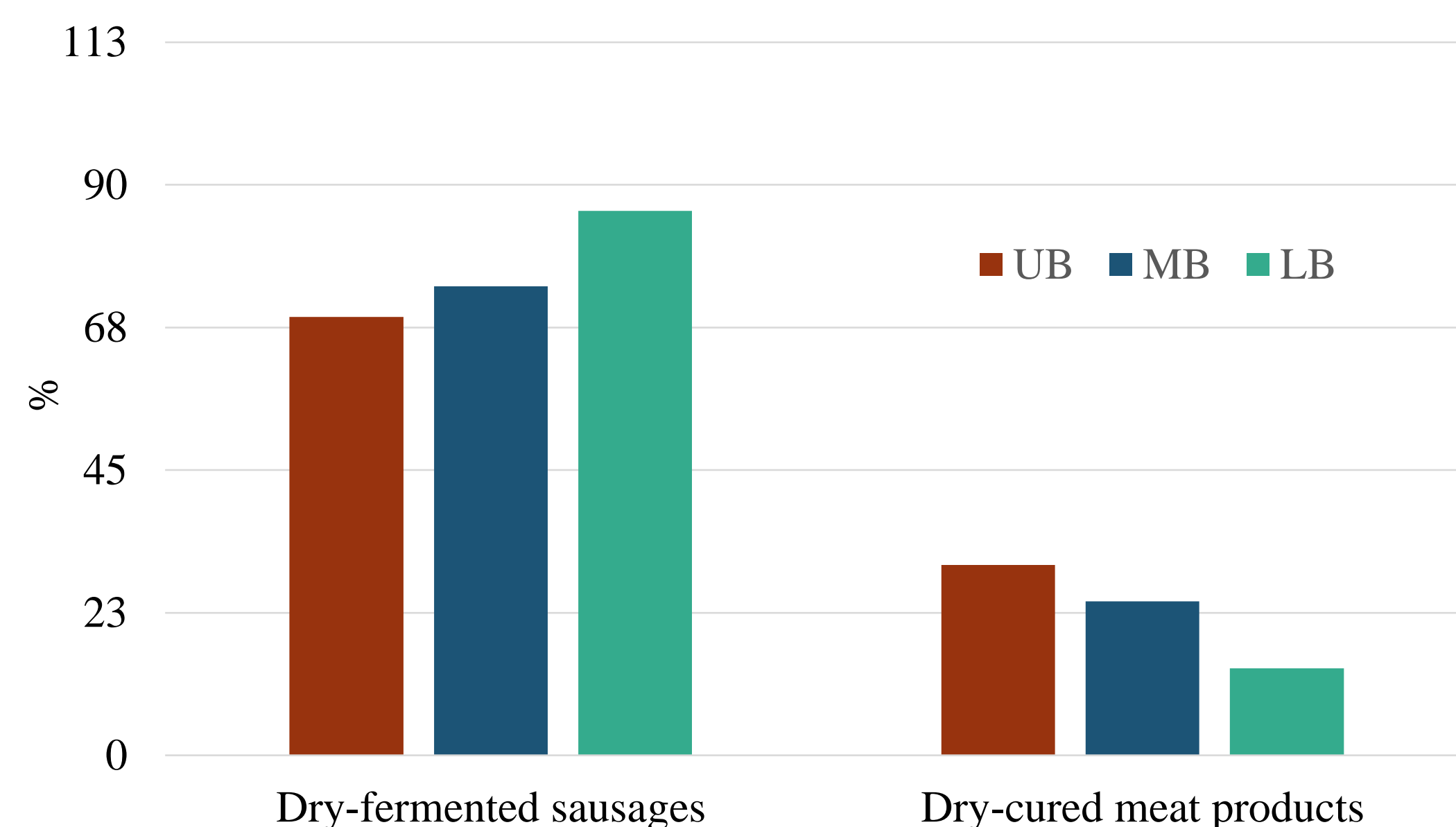
**Table 1.** Distribution of samples with detected mycotoxin concentrations

TMP group	N	STC		AFB1	
		N*	%	N*	%
Dry-fermented sausages	138	8	6	0	0
Dry-cured meat products	142	4	3	0	0
In total	280	12	4	0	0

N= total number of samples per TMP group; N\*= number of samples with detected mycotoxin concentrations; %= percentage of samples with detected mycotoxin concentrations

**Table 2.** STC exposure assessment in traditional meat products

Scenario	Min	Mean	Max	P95	SD
	ng/kg bw/day				
Lower bound (LB)	0.000000	0.011	0.122	0.046	0.017
Middle bound (MB)	0.000005	0.016	0.201	0.060	0.022
Upper bound (UB)	0.000008	0.020	0.292	0.074	0.028



**Figure 1.** The relative contributions of traditional meat product groups to STC

## CONCLUSION

- AFB1 was not detected in any sample, indicating negligible exposure through TMPs.
- STC was found in 4% of TMP samples.
- Maximum STC exposure (0.292 ng/kg bw/day) is well below EFSA's safety threshold (2.5 ng/kg bw/day).
- Dry-fermented sausages were the main source of STC exposure
- It is important to monitor long-term trends in population exposure to mycotoxins.