
***Fusarium* toxins in unprocessed cereals other than maize**

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Austrian Agency for Health and Food Safety
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Methods

parameter	extraction	clean up	derivative	separation	detection
A-Trichothecenes T-2 toxin, HT-2 toxin, Monoacetoxyscirpenol, Diacetoxyscirpenol	Acetonitrile/water	Mycosep	HFBI	GC (2 columns)	EC
B-Trichothecenes Deoxynivalenol (DON) , Nivalenol (NIV), Fusarenone X, 3-AcetylDON, 15-AcetylDON	Acetonitrile/water	Mycosep	TMS	GC (2 columns)	EC
Zearalenone (ZON)	Acetonitrile/water	IAC	-	RP-HPLC	FL

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cereals:

wheat: 60-73%, Rye: 6-10%

barley: 6-12%, Triticale: 6-8%

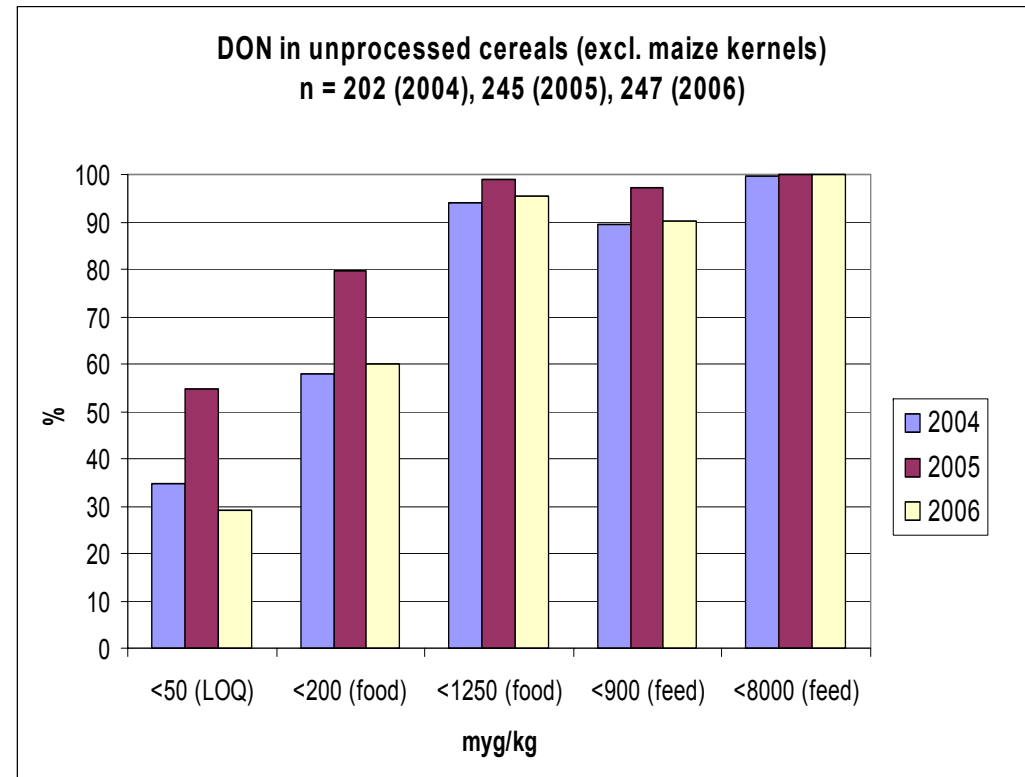
oats: 4-5%, durum: 4-7%

1250 µg/kg EU maximum level for unprocessed cereals other than maize, durum and oats

8000 µg/kg EU guidance value for feed materials (cereals and cereal products)

200 µg/kg EU maximum level for cereal-based foods for infants and young children

900 µg/kg EU guidance value for complete feedingstuffs for pigs



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cereals:

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100 µg/kg EU maximum level for unprocessed cereals other than maize

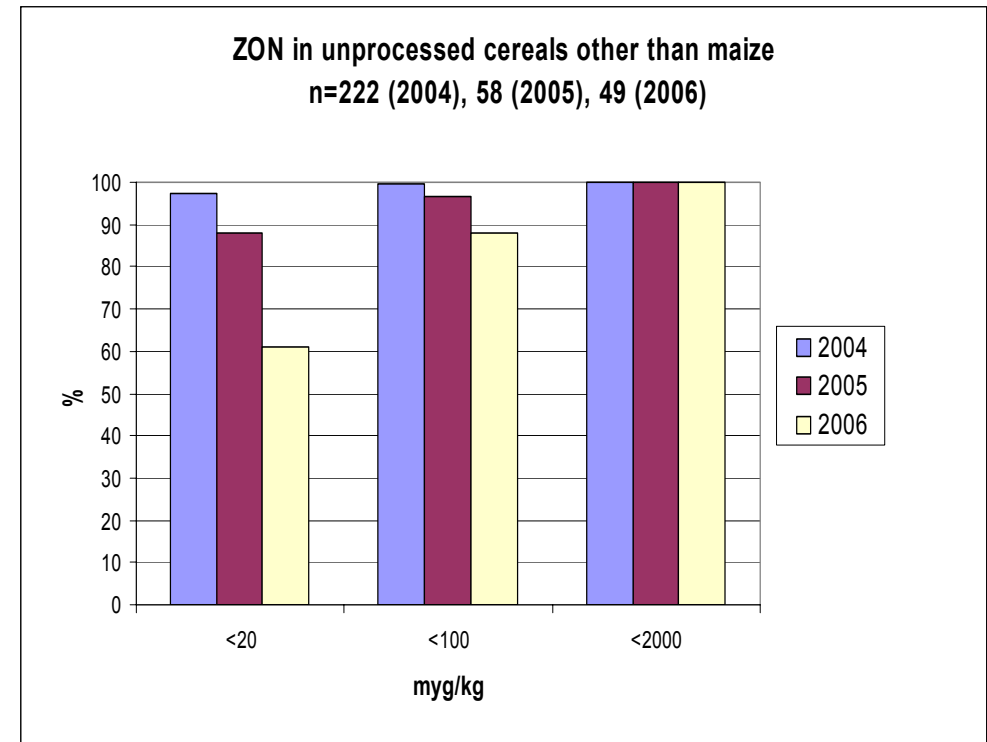
2000 µg/kg EU guidance value for feed materials (cereals and cereal products)

20 µg/kg EU maximum level for cereal-based foods for infants and young children

100 µg/kg EU guidance value for complete feedingstuffs for piglets and young sows

DON/ZON: $r=0,6$ (for ZON > 20 ppb; $n=32$)

N.B.: data of 2005 and 2006 not representative : „a posteriori“ selection due to high DON values



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N and DON maxima:

wheat (n=337): 6700 ppb

durum (n=29): 1300 ppb

triticale (n=34): 2600 ppb

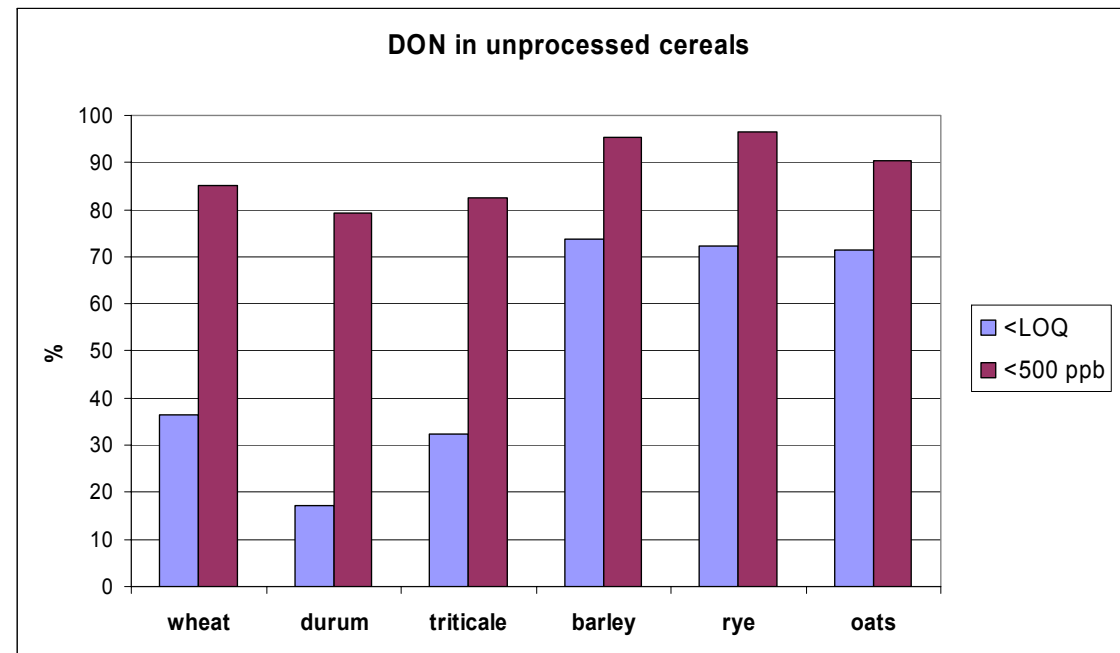
barley (n=42): 1100 ppb

rye (n=29): 770 ppb

oats (n=21): 700 ppb

Ranking of DON contamination:

durum > wheat, triticale > barley, rye, oats



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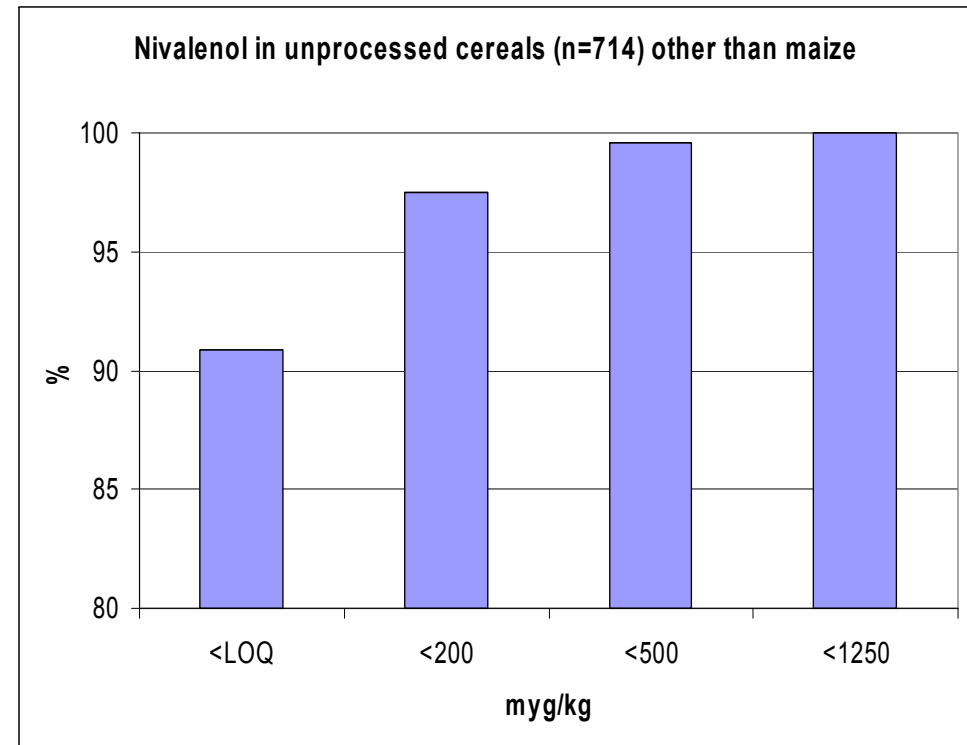
oats: 4-5%, durum: 4-7%

Range: LOD – 690 ppb

LOQ = 75 ppb

DON/NIV:

$r = 0,02$ (for NIV > 75 ppb; n=59)



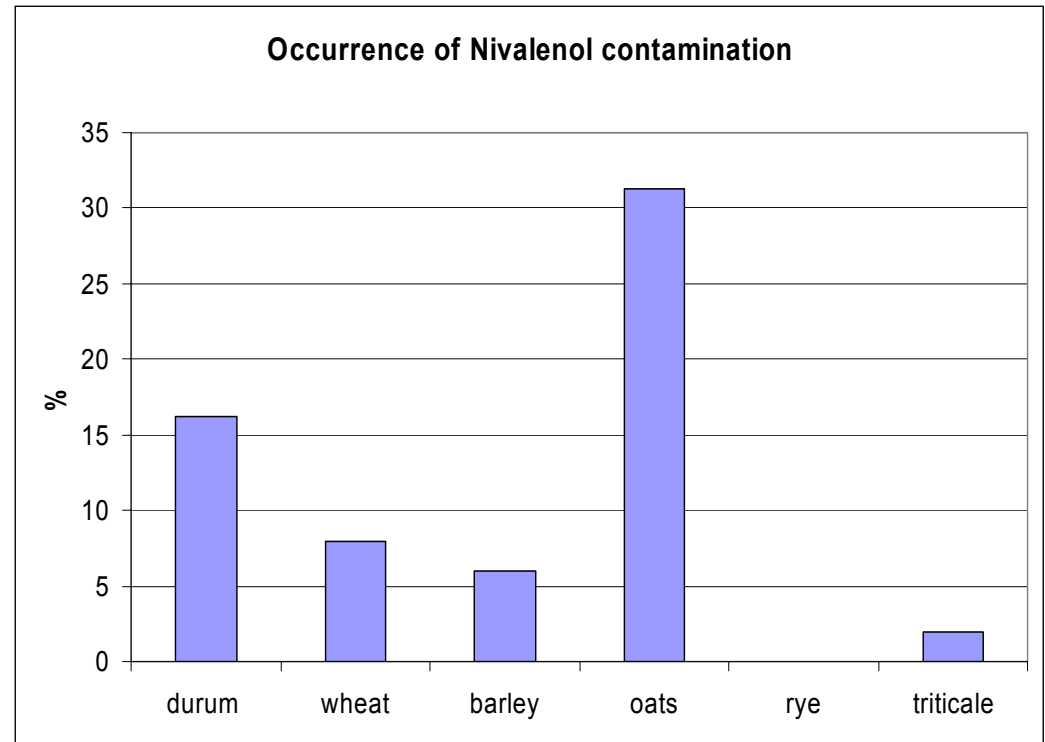
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Percentage of nivalenol contamination (> 75 ppb) with regard to cereal sort

N:

Durum=37, wheat=476, barley=67,

Oats=32, rye=51, triticale=51



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Fusarenon X (n=714)
n.d. (<30 ppb)

3-Acetyldeoxynivalenol (n=714)
>LOQ (50 ppb): 0,4%

Range: <LOD – 70 ppb

15-Acetyldeoxynivalenol (n=714)
>LOQ (50 ppb): 2,4%

Range: <LOD – 220 ppb

A-trichothecenes (2004; n=202):

**T-2 toxin , HT-2 toxin, monoacetoxyscirpenol,
diacetoxyscirpenol**

<LOQ (<100 ppb)

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Thank you for your attention

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