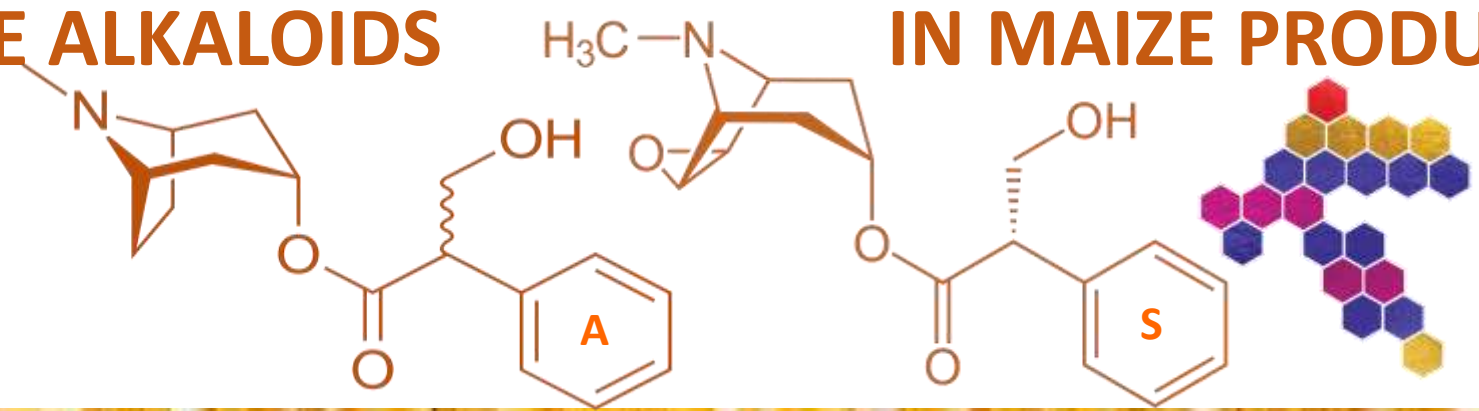


RISK TO PUBLIC HEALTH RELATED TO TROPANE ALKALOIDS IN MAIZE PRODUCTS

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- **Research idea:**
- EC Regulation 2021/1408 - **maximum levels** of tropane alkaloids - some cereals and cereal-based products
- EC recommendation 2015/976 - **monitoring** of tropane alkaloids in food
 - **Analysis:**
 - **LC-MS/MS** – atropine (A), scopolamine (S); risk evaluation - **case-by-case**
 - **Risk metric:**
 - **Acute Reference Dose (ARfD) 0.016 µg/kg bw** (sum of atropine and scopolamine)
 - **Margin of exposure (MOE)** - benchmark dose for **clinically significant acute effects 1.54 µg/kg bw**
 - **MOE - potentially adverse effects** - increased heart rate, decreased saliva, pupil dilation, dry mouth and sweat secretion, etc. at dose of **4.62 µg/kg bw**
 - **Conclusions:**
 - ARfD → adverse health effects cannot be ruled out; MOE → health concern
 - **Further considerations:**
 - Exposure of sensitive populations with underlying health conditions, such as **malnourishment**, population suffering from **coeliac disease**

Maize products	ALL (103)	POLENTA (39)	GRITS (33)	SEMOLINA (31)
% samples > ARfD	21 / 17 / 12	8 / 0 / 0	33 / 30 / 21	26 / 26 / 16
Max % ARfD	1867 / 1321 / 936	137 / 97 / 68	608 / 431 / 305	1867 / 1321 / 936
Min MOE	5 / 7 / 10	70 / 100 / 141	16 / 22 / 32	5 / 7 / 10

Order of data: children / younger adolescents / older adolescents and adults

