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The U.S. Government's Global Hunger & Food Security Initiative

ANH2021
Agriculture, Nutrition and Health Academy Week

Aflatoxin M1-related health risk for milk consumers in dairy farms in rural and peri-urban areas of Burkina Faso

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Purpose

Milk consumption in Burkina Faso is expected to increase in years to come, but current milk production does not meet demand and future increased consumption will lead to a higher deficit. The Government is planning investments to improve milk production. However, milk can contain hazards, such as Aflatoxin M1 (AFM1) which may pose a health risk to the population.

- The purpose of the project was to evaluate potential health risks posed by AFM1 levels in milk consumed in three demographic groups

Methods

- 24 hours recall of milk consumption in dairy farm households for three demographic groups **– children between 1 and 5 years** old, **breastfeeding woman** and **pregnant woman** - from Dori and peri-urban area of Ouagadougou
- Samples from milk consumed at household and quantification of AFM1 levels
- Calculate number of cases of hepatocellular carcinoma (HCC) attributable to AFM1 per 100 000 persons /year in each demographic group and region – stochastic model, 100 000 runs, amount of milk consumed, levels of AFM1 in milk, body weight, cancer factor, Hepatitis B prevalence

Findings

- 268 farm households enrolled in the study (104 peri-urban and 164 rural), during May 2019;
- In peri-urban Ouagadougou all households had at least one person consuming milk, while in rural Dori this was the case in 82.9% households
- 98 milk samples from peri-urban Ouagadougou farms and 143 samples from Dori. None had values higher than the Codex Alimentarius limit recommendation for AFM1 in raw milk (Figure 1)
- Higher per capita consumption than general population in Bukina Faso; relatively low exposure in ng/ kg bw/day (Figure 2) and low number of HCC attributable to AFM1

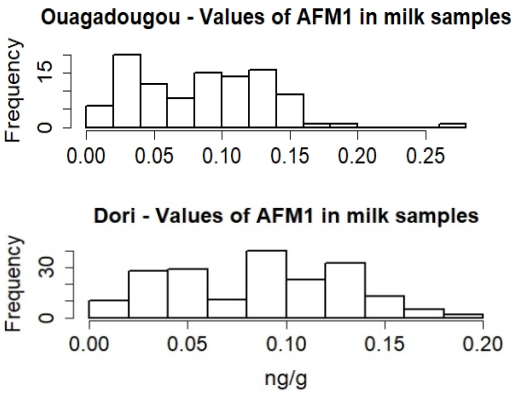

Figure 1: Concentration of AFM1 in the samples of milk from farms in each region

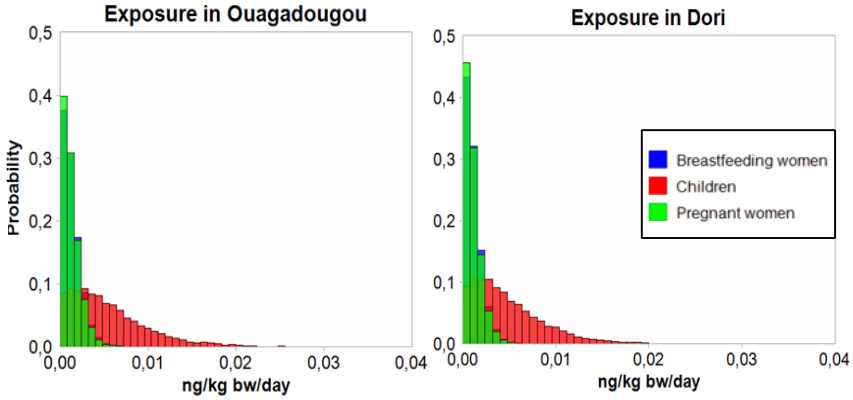

Figure 2: Exposure in ng/kg bw/day (X axis) and probability (Y axis) for each demographic group in each region.

Conclusion

- It seems that with these milk consumption patterns and AFM1 levels, AFM1 presents low risk for HCC development. More studies needed to understand the impact of life long exposure and other potential negative impacts other then development of HCC
- Children between 12 and 60 months old are the most at risk, due to lower body weights
- Even if our estimates are higher than what would be expected country-wide, due our study population higher amount of milk consumption, with increased production and consumption it will be important to monitor AFM1 levels and ensure they not pose a threat to consumers' health

This work was funded in whole or part by the United States Agency for International Development (USAID) Bureau for Food Security under Agreement # AID-OAA-L-15-00003 as part of Feed the Future Innovation Lab for Livestock Systems. Any opinions, findings, conclusions, or recommendations expressed here are those of the authors alone.

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