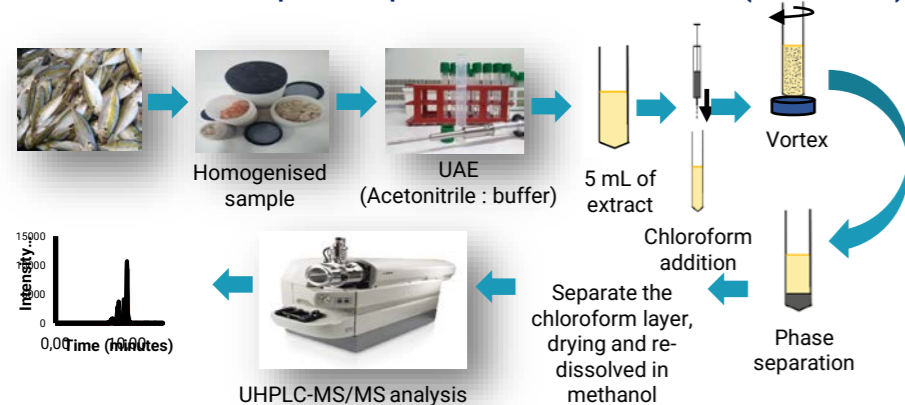


Introduction

Aflatoxins (AFs) is a group of toxic metabolites of mold that significantly affect to human and animal health. Animal tissues can retain AFs residues, including AF metabolites, giving rise to potential health issue. It has possibility to transfer from food (including meat) to the human body. To understand the possibility of AFs transformation, sufficient knowledge about the level of AFs in foodstuff and the fraction of AFs absorbed by the human body are needed. Human bioavailability approaches, mainly encompassing processes such as digestion, absorption, transport, utilization, and elimination, are useful strategies for understanding the fraction of nutrients and pollutants that can theoretically be released in the gastrointestinal tract (GI) and become available for intestinal absorption. Human bioavailability approaches are split into *in vivo* and *in vitro* assays; current study is focus on the development of an *In vitro* bioaccessibility method, helps to indicates the maximum fraction of the AFs in the muscle and livers, that can theoretically be released from foodstuff in the GI tract (bioaccessible fraction), which then becomes available for entering into the bloodstream.

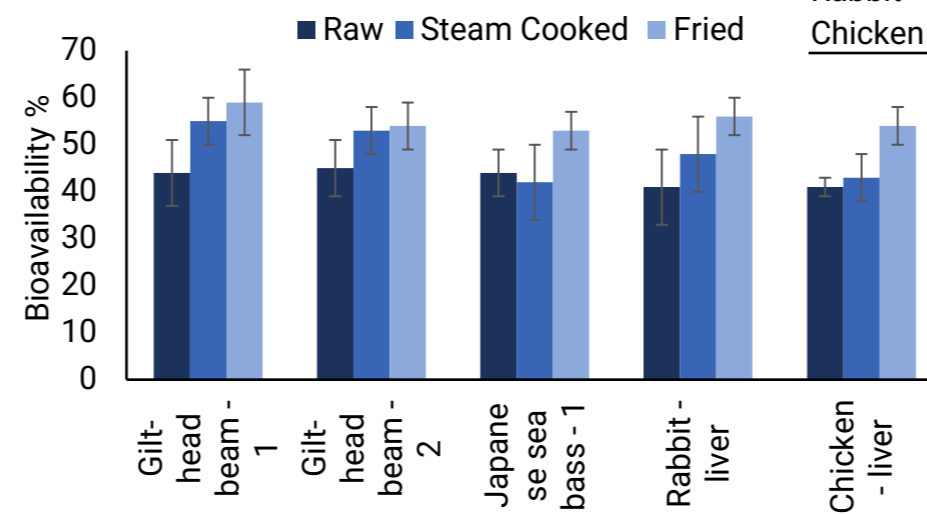
Methodology

Vortex Assisted Liquid-Liquid Micro Extraction (VALLME)



Results

Raw samples showed bioavailability ratios of 41–45% for aflatoxin B1 (AFB1), 28–38% for aflatoxin B2 (AFB2), and 42% for aflatoxin G2 (AFG2). Aflatoxin G1 (AFG1) was not detected.



Bioavailability of aflatoxins in foodstuff

AFG2	Bioavailability (%)		
	Raw	Steam Cooked	Fried
Gilt-head beam - 1	-	-	-
Gilt-head beam - 2	-	-	-
Japanese sea bass - 1	-	-	-
Rabbit - liver	42 ± 8	43 ± 8	56 ± 7
Chicken - liver	-	-	-

AFB2	Bioavailability (%)		
	Raw	Steam Cooked	Fried
Gilt-head beam - 1	-	-	-
Gilt-head beam - 2	28 ± 3	29 ± 6	37 ± 7
Japanese sea bass - 1	-	-	-
Rabbit - liver	-	-	-
Chicken - liver	-	-	-

Conclusions

- Cooked samples (mainly fried samples) found slightly higher dialyzable AFs than raw samples
- Mass balance study performed to comparing sum of AFs level in dialyzable and non-dialyzable fraction with total AFs content in the sample
- AFB2 is implying statistically difference between AFB2 in sample and sum of AFB2 level in dialyzable and non-dialyzable fraction
- AFB2 transformation/degradation into other compounds during the *in-vitro* assay
- AFB2 degradation product presents in both dialyzable and non-dialyzable fraction

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Further information

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In-Vitro dialyzability approach

