Wild meat/Bushmeat - Food Safety Implications

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Traditional Consumption of Wild Meat

- Important and essential part of the diet in remote rural areas: e.g. 98% of animal protein consumed in parts of Cameroon
- Extraction estimation in the Congo basin: 4.5 to 5 million tons of wild meat annually (Fa, Peres and Meeuwig, 2002, Wilkie and Carpenter, 1999a).
- Harvest in the Brazilian Amazon: estimated between 67,000 and 164,000 t/year (Robinson and Redford, 1991)
- In the single Malaysian state of Sarawak: approximately 23,500 tons of wild meat are eaten per year (Bennet, Nyaoi and Sompud, 2000)
Traditional Trade of Wild Meat

- Provide economic benefits to groups of peoples in the “commodity” chain: 24 M$ in Liberia more than timber trade; 117 M$ in Ivory Coast (Bowen-Jones et al. 2002)

- In form of dried meat, salted or smoked meat

- Mostly ungulate (73% weight) and rodents (12%) or but also fish and primates (12%)... west and central Africa (Fa et al. 2005)

- All wild animals are potentially candidates for bushmeat
Emerging Consumption patterns and trade

- In cities bushmeat is a luxury item associated to a premium price
- Increase marketing of wild meat: 73% of respondent consumers in the western province of South Africa had eaten game meat (Hoffman, 2011)
- Increasing local, regional and international movement of wild meat

- Tourism, health connotated products emerging
New pathways to supply wild meat

- Development of game farming
- Marketing in butchery
- Illegal trade and marketing
Microbiological Hazards

- Credible hazards, public health burden similar to other meat (FSA risk assessment):
  - Bacteria: salmonella, campylobacter, VTEC, TB, Clostidium perfingens, Yersinia enterolitica, Y. pseudotuberculosis, Brucella...
  - Parasites: giardia, cryptococcuc, Taenia saginata, T. solium, Echinococcus, Toxoplasma...

- Emerging, re-emerging pathogens: anthrax, TB, trichinella and ?

- Risks mostly adequately addressed by cooking, drying and smoking

- Main risk results from cross contaminations, hygiene and emerging consumption patterns
Chemical Hazards

- **Pesticides residues:**
  - Organochlorids permitted or recently banned in crops production, ectoparasites control or insect vector/pests control (Lindane, DDT, Endosulfan, Aldrin...)
  - High exposition of wildlife living near crop lands
  - Importance of rodents (grass cutters) in bushmeat

- **Illegal toxics and poisons**
  - Baiting with highly potent chemical pesticides
Wild Meat Production

- Deficient or lacking ante-mortem inspection: hunting, poaching, informal trade, sick animals and cadavers
- Game farming lacking adequate GAP and FSM: 40% of South African game farmers admit to have no procedures to reduce the risk of zoonoses, few have health plan in place
- Game abattoirs are rarely under mandatory official meat inspection
- Illegal trade ==> falls under the food control system
ATTÉSTATION DE LIBRE CIRCULATION DES DÉNÉREES ALIMENTAIRES

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CERTIFICAT SANITAIRE

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Je soussigné,

Pr. M. Gabriel Pita
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Transport des biens mentionnés ci-dessus par voie terrestre.

NATURE:
- Viande
- Lait
- Sucre
- Produits laitiers
- Pâtes et pâtes de céréales
- Moutarde

Désigné par:

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• Low risk: bushmeat cooked in a traditional manner
• High risk of cross contaminations with food eaten with little or no further cooking
• Non food borne risks in kitchen in addition to occupational risks: monkey pox virus, parasites eggs...
• Evidence from urban markets suggests that most bush meat is marketed smoked, dried or salted \(\Rightarrow\) low risk

• Emerging high risk practices: suggested by Paris airport study (Anne Lise Chaber et al. 2010)
• Traditionally, bush meat is chopped in small pieces and boiled several hours == lower risk, even anthrax spores (Spotts Whitney et al 2003) and monkeypox virus (Hahon and Kozikowski, 1961) are inactivated

• Important risk of cross contaminations in kitchen with common enteric food born organisms: salmonella, E. coli and campilobacter ==> moderate risk

• Non food born risks in kitchen: anthrax, monkeypox, brucellosis ==> however characterized as very low risk
Possible Actions

- Data collection and processing including trade (limited to illegal import seizure data)
- Integrate wild meat risks in food safety policy
- Consider food safety in wild meat issues
- Information and communication (customs, households, hunters, foreign diaspora, travelers...)
- Strengthening trend analysis and surveillance of emerging hazards and emerging epidemiological patterns
Thank you