Anchovy Processing in Ghana:





Describing Quality and Food Safety Parameters in the Processing Chain



Laura Wessels¹, Theophilus Annan², Amy Atter², Marian Kjellevold³, Felix Reich¹, Johannes Pucher¹

¹German Federal Institute for Risk Assessment, Germany; ²Council for Scientific and Industrial Research - Food Research Institute, Ghana; ³Institute of Marine Research, Norway

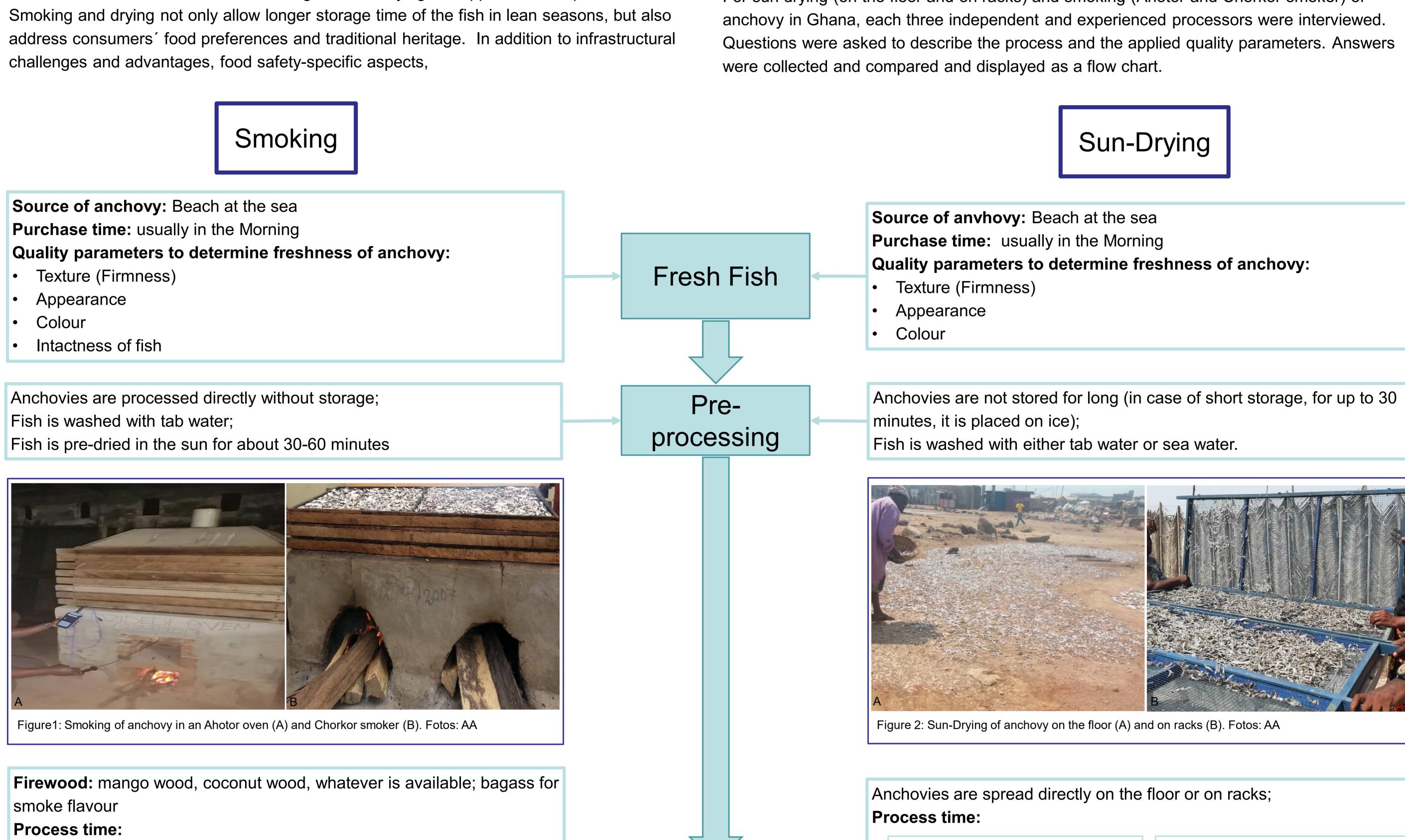
Introduction

Small fish species like anchovy (Engraulis encrasicolus), which are eaten whole, contain a wide range of essential nutrients and consumption can contribute towards nutrition security. At the same time, fish is highly perishable. Storage and transportation of fresh fish requires a lot of resources for preservation of the fish. When freezing or refrigeration infrastructure is limited, also the availability of fish as food is limited, especially in seasons of shortage. Therefore low cost traditional methods such as smoking and sun-drying are applied for fish preservation.

such as chemical and microbiological contamination, have to be considered and controlled. In this study, the objective was to describe the processes of sun-drying and smoking of anchovy in Ghana. The quality criteria applied by the producers in the field were asked for in a questionnaire.

Material & Methods

For sun drying (on the floor and on racks) and smoking (Ahotor and Chorkor smoker) of



Ahotor oven:

Up to a working day

Chorkor smoker: • 1-4 hours

Quality parameters to determine the end of the process:

- Odour
- **Taste**
- End of liquid dripping from the fish trays
- Colour of the fish (yellowish/brown colour)
- Experience

Potential storage time: ~3 month; up to max. 6-9 month, in rare occasion 2 years;

Tightly packed in brown paper and plastic bags;

No resmoking;

Reasons for spoilage during storage:

- Increasing moisture
- insect infestation

Quality parameters during storage:

- Taste
- Being free from insect infestation
- Moisture/water content stays low
- Intactness of fish (impaired if scales come off easily, fins should not be broken off, intestines do not come out, no powder formation)

Sun-drying on the floor:

- up to 3 days
- fish is turned around with a broom (at least once per day)

Sun-drying on racks:

- up to 5 days
- fish is turned on racks (several times per day)

Quality parameters to determine the end of the process:

- Texture (fish should be brittle)
- Moisture / water content (fish should be dry)
- Colour of the fish (avoid discolouration)

Potential storage time:~3 month, max. 1 year;

Tightly packed in brown paper and plastic bags;

Periodically redrying (depending on weather conditions);

Reasons for spoilage during storage:

- Increasing moisture
- insect infestation

Quality parameters during storage:

- Odour
- Texture of fish (Brittleness)
- Being free from insect infestation
- Moisture/water content stays low
- No discolouration (reddish/brownish colour as a sign for poor quality)
- No mouldy growth
- > Availability of fish and other resources (e.g. space, fuel wood), convenience (e.g. practicability) and time are the most important factors for choice of method

Storage

Process

- ► Process parameters and the applied quality parameters are not consistent between the different processors
- ► Determination of the quality of processed fish is mostly based on individual experience
- Further transport, storage, selling and consumer practices were not included in this study, but should also be considered for a thorough description of value chain