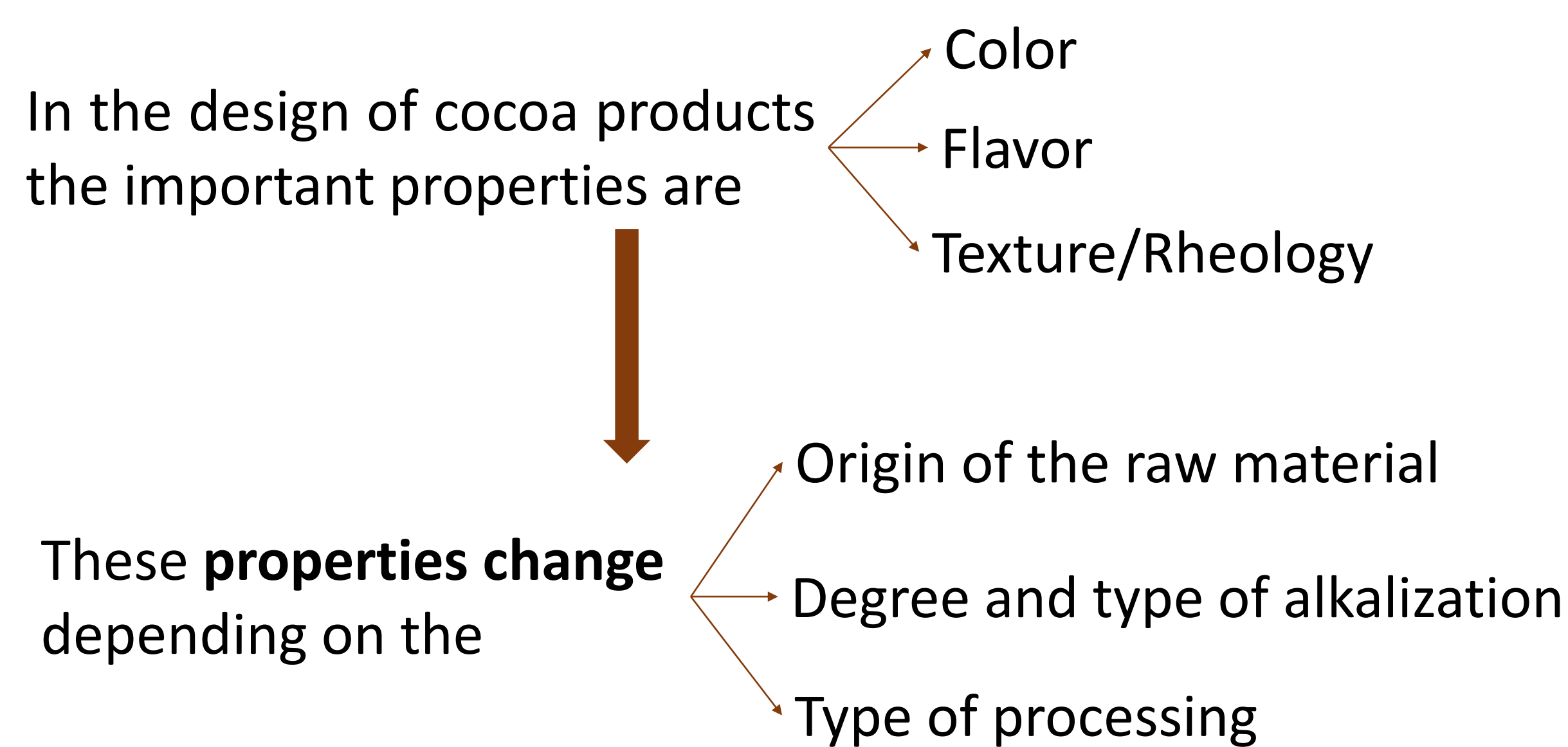
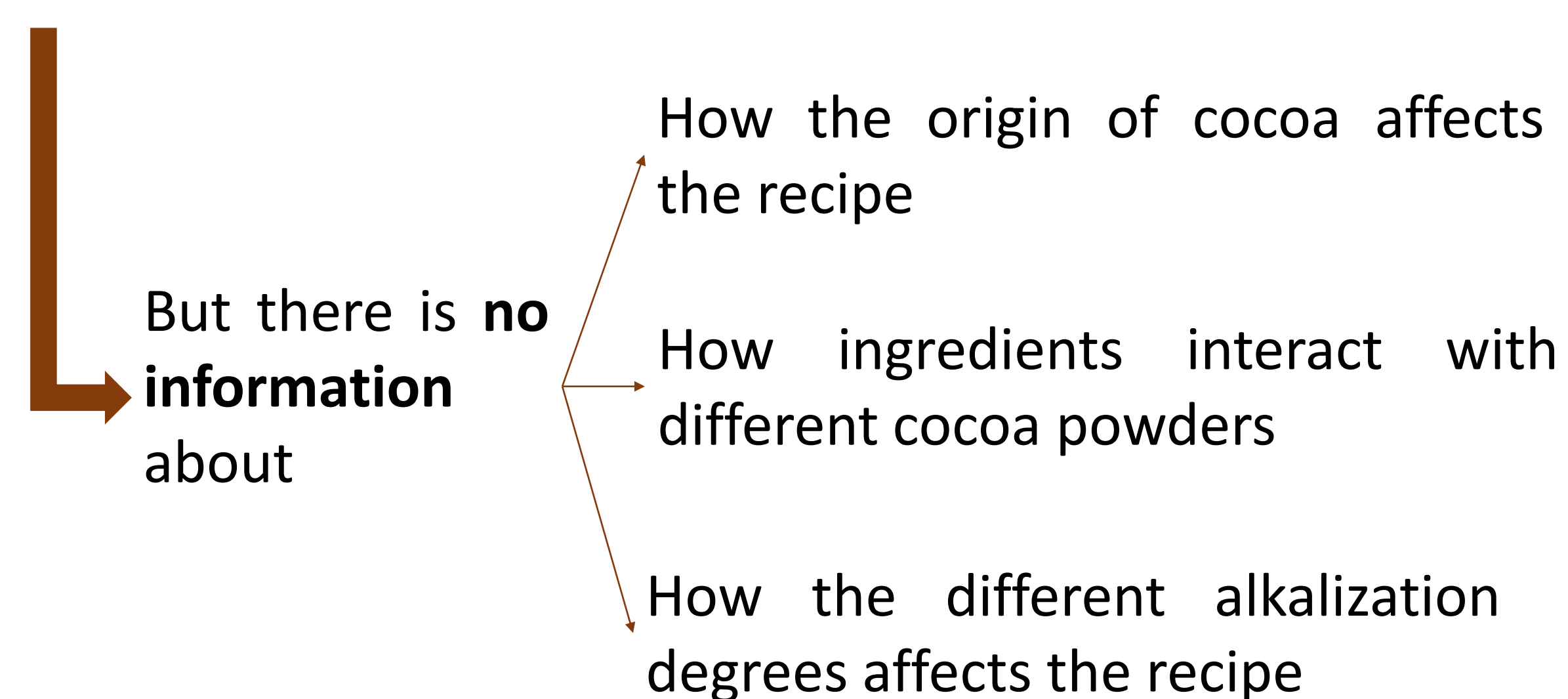


State of the art



Different studies have traditionally studied the influence of cocoa addition to food matrices



Objectives

- Study how properties of final product changes when it is produced with cocoas from:
 - Depending on the **origin**
 - Ivory Coast
 - Ghana
 - Indonesia
 - Depending on the alkalization **process**
 - Depending on the **chemical agents** to alkalize:
 - K₂CO₃
 - NaHCO₃
 - KOH
- Reformulate recipes to elaborate **healthier products** (no sugar added, functional ingredients...).
- Develop new **innovative applications including** cocoa powder.
- Relationship between physical-chemical parameters of the raw material and the results in application.
- Relationship between the **volatile constituents** of the cocoa powder and the volatile components of the final application.

Applicability of results

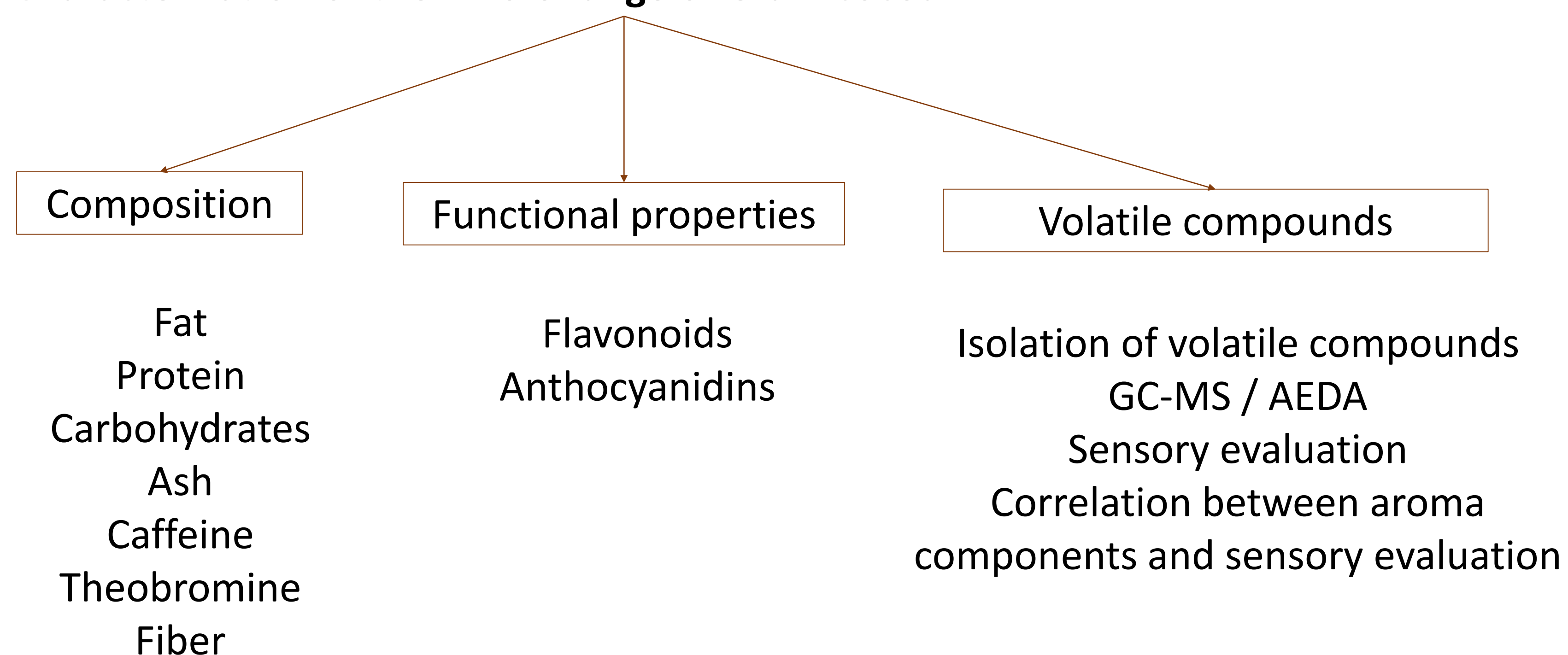
- New use of the cocoa ingredients
- New options for healthy recipes
- Creation of innovative recipes
- Depending on the results, the industry can be advised of the best cocoa powder for each application.
- Study of how the processing of the cocoa powder influence the recipe

Cocoa processing

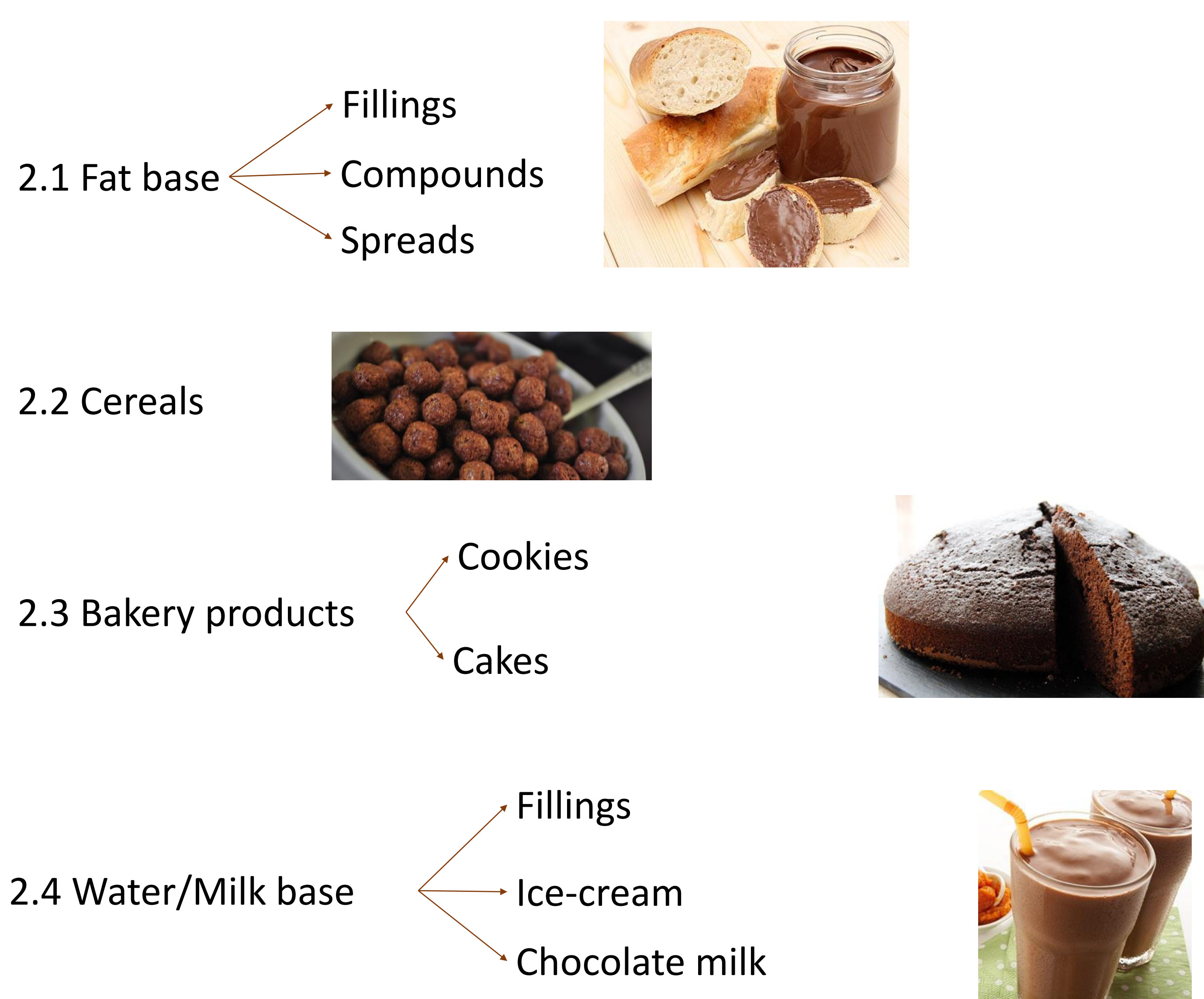


Working plan

1. Characterization of the whole range of Olam cocoa



2. Preparation of different applications



3. Determination of different parameters in the products

- Texture (cake, cookies)
- Rheology (dough and final applications)
- Color (all the applications)
- DSC (chocolate)
- Poliphenols, antioxidant capacity
- pH
- Moisture
- Sensory evaluation

4. Correlation between type of raw material, processing and the application.