

Novel snack inspired from the traditional Egyptian kishk Saeedi: Compositional, microbiological and microstructural qualities

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Presentation highlights

- ❑ What?
- ❑ How?
- ❑ Why?
- ❑ Why not?
- ❑ What?



What is Kishk Sa'eedi KS

□ What?

- The name 'kishk Sa'eedi' refers to fermented dairy whole wheat mix produced traditionally in Upper Egypt for home consumption.





How Kishk Sa'eedi is made?

□ How?

□ The ingredients that enter into the production process include:

- locally grown parboiled dried coarsely grinded whole wheat,
- fermented buffalo or cows butter milk
- table salt,
- whole cumin seeds,
- water



Why Kishk Sa'eedi KS

□ Why?

- affordable balanced source of proteins
- shelf stable i.e. shelf life for one year
- low in saturated fats and high in dietary fiber
- major contributor to protein requirement
- preservative free
- potential probiotic activity
- comply with the new dietary guidelines i.e. USDA Dietary Guidelines 2010, recommends that at least $\frac{1}{2}$ of all the grains eaten should be whole grains

Kishk Sa'eedi KS: Drawbacks

Why not?

- inconsistent quality,
- KS is prepared and consumed in ONLY Upper Egypt
- unattractive presentation compared with western style foods
- the mouth-feel attributes i.e. hard texture and strong sour taste compared to commercially available snack

Kishk Sa'eedi KS: Drawbacks (Conti.)



Preparation of *ZER* milk



Preparation of Parboiled wheat



Preparation of *HAMMA*



Shaping and drying



Storage

Driving forces to develop novel snack

- ❑ Commercial snacks available are high fat, high salt and high simple sugars i.e. features of unbalanced unhealthy snack.
- ❑ Food and snacks high in dietary fiber, low in salt, fat and calories will be appreciated by aware consumer.
- ❑ So, to overcome the drawbacks mentioned previously and to benefit from the KS's high nutritional value, novel snack inspired by KS was prepared,
- ❑ Composition, micro-structure, as well as acceptability of the novel snack was determined

The base formula

Ingredients

- Whole wheat soaked (50° C for 30 min), boiled (for 60 min) drained, oven dried to 14% moisture and grinded to PSI 19.7%.
- Fermenting agent (mixture of butter milk and full fat milk (inoculated by cutler of *Lactobacillus rhamnosus*, *Lactobacillus gasseri*, *Lactococcus lactis subsp lactis*)
- Salt
- Water
- Baking at 160 ° C for 5-10 min.

Novel snack

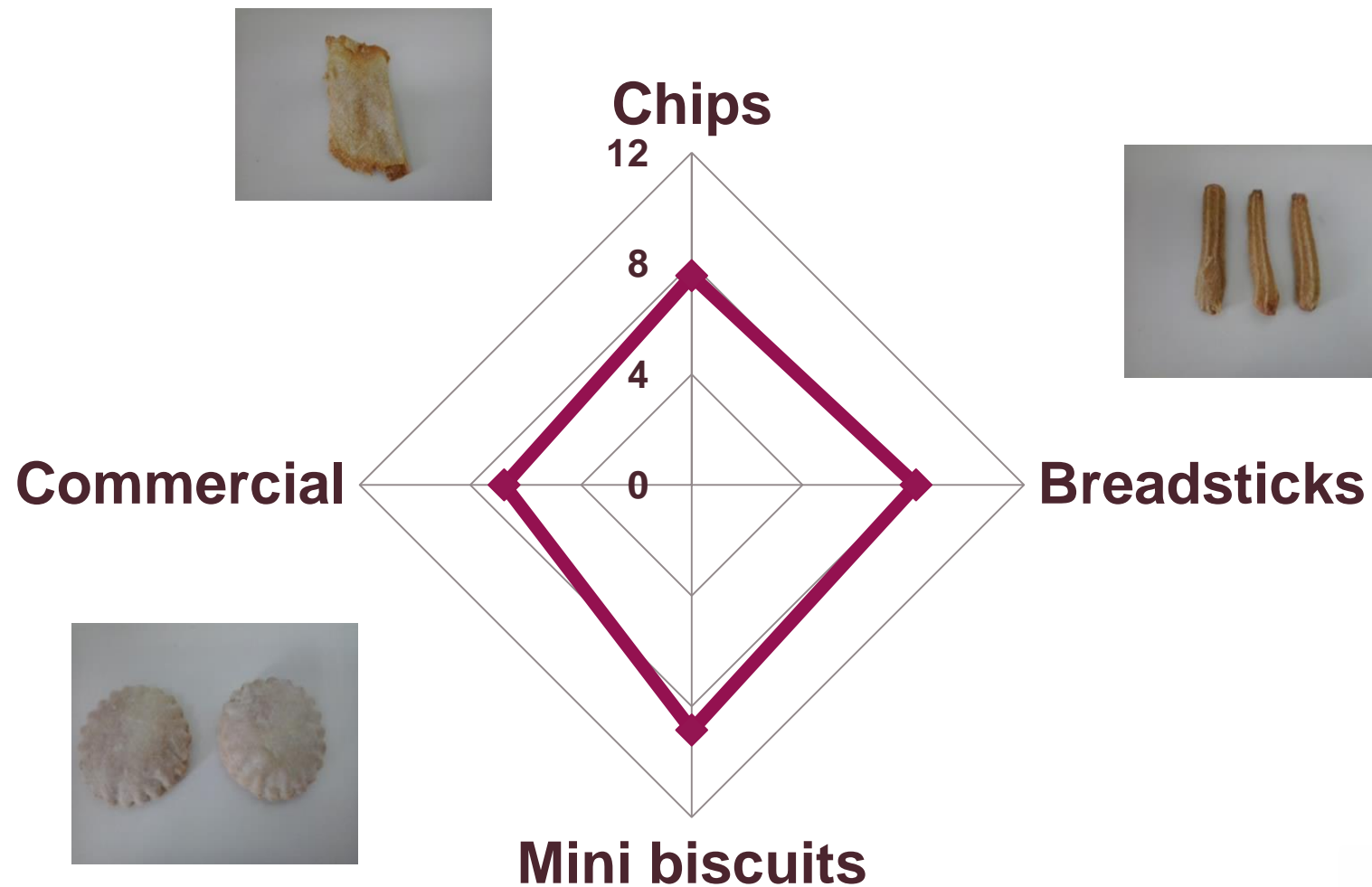




F T E R

Proximate composition

Moisture (%)

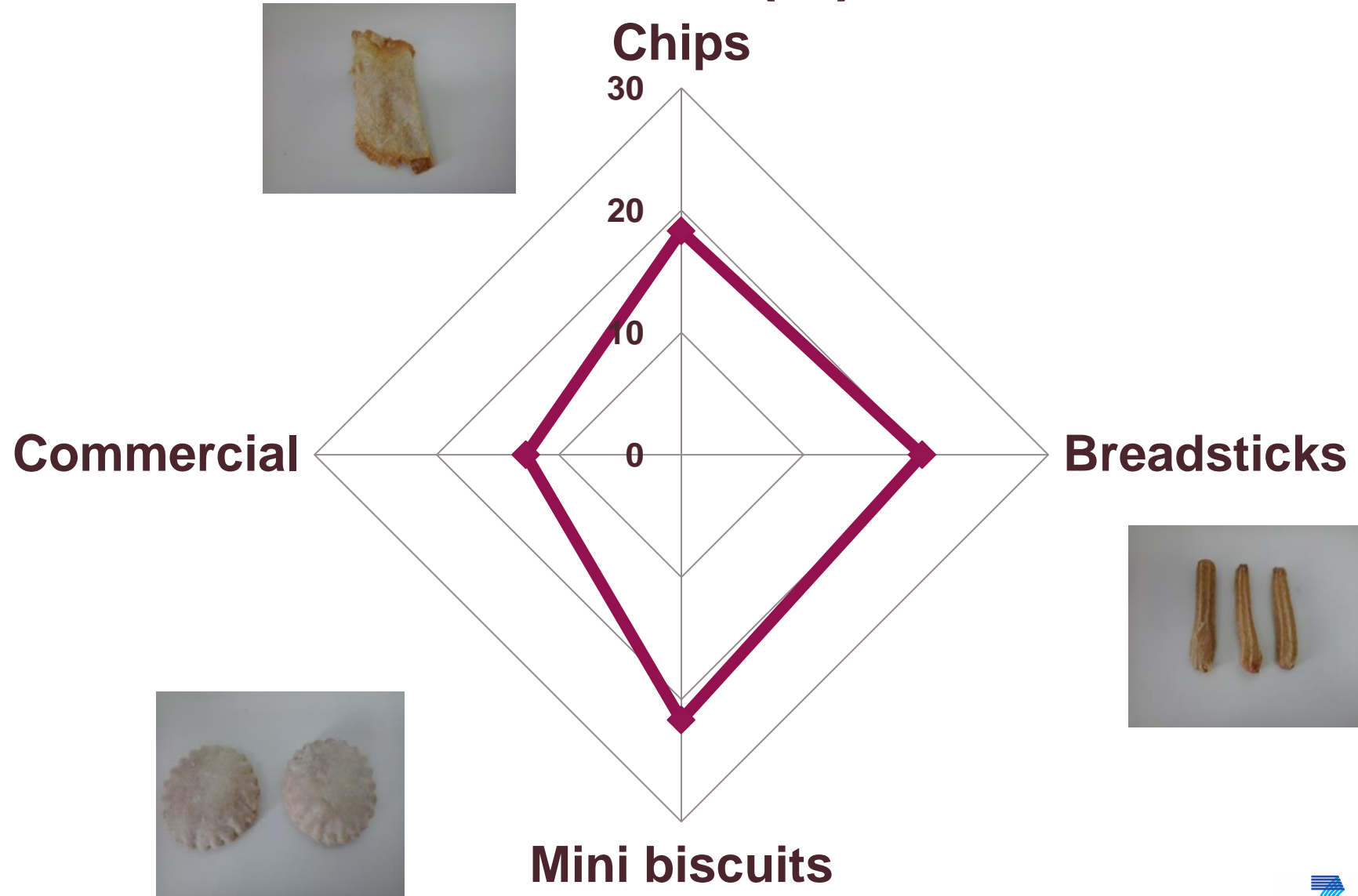




FTER

Proximate composition (Cont.)

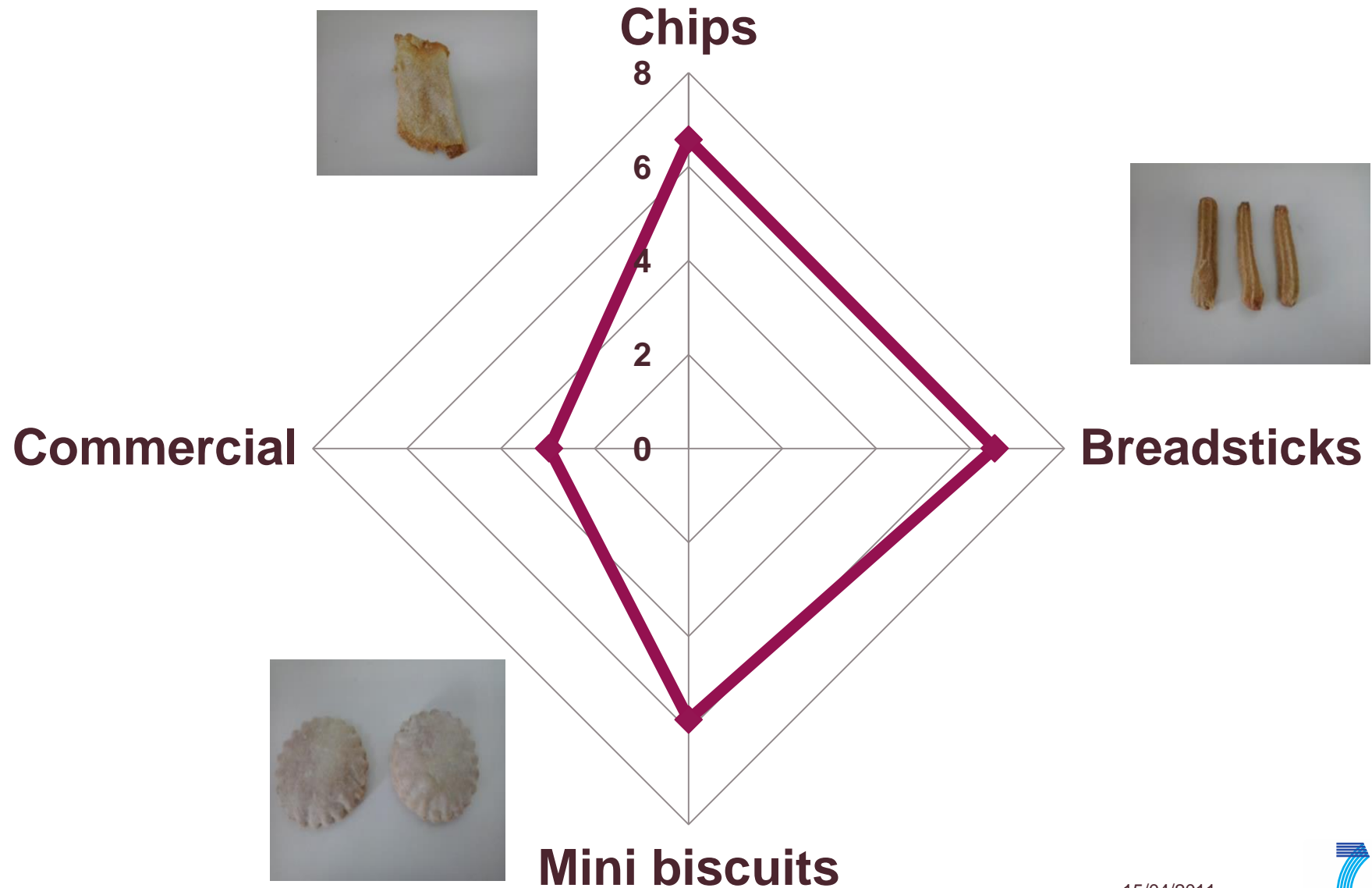
Protein (%)





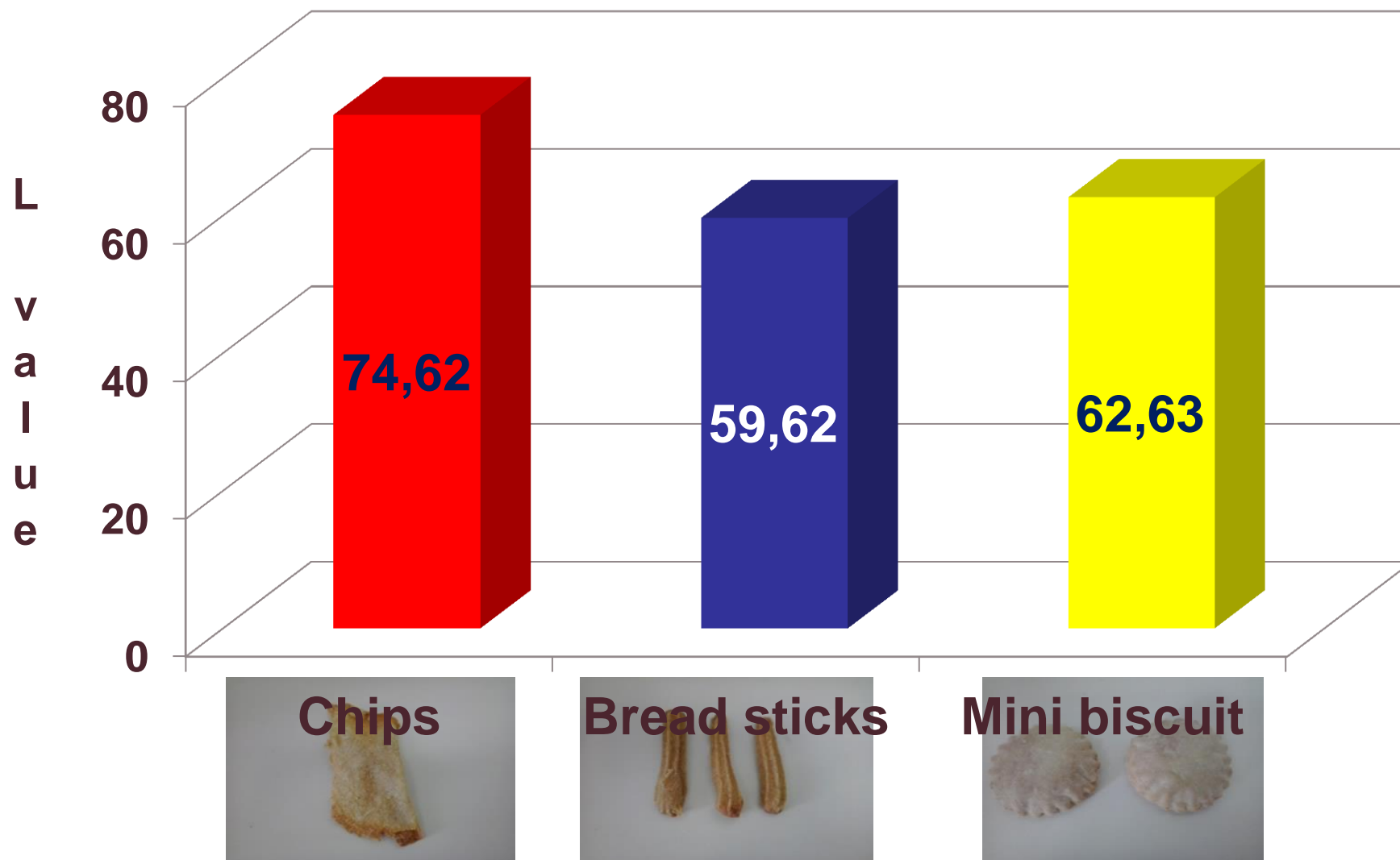
Proximate composition (Cont.)

Dietary fiber (%)



Color quality

L value



Sensory quality

- ❑ 17 panelists tested 3 different *new* snacks and developed the most suitable sensory descriptors (9) characterizing appearance, odor, taste, and texture.
- ❑ The final descriptors selected were:
 - ❑ Appearance (*color, presence of bran particles*)
 - ❑ Texture (*fracturability, grittiness, denseness, mouth coating*)
 - ❑ Taste (*saltiness, sourness*)
 - ❑ Odor (*fermented*)



F T E R

African food tradition revisited by research

Project coordinator : Cirad

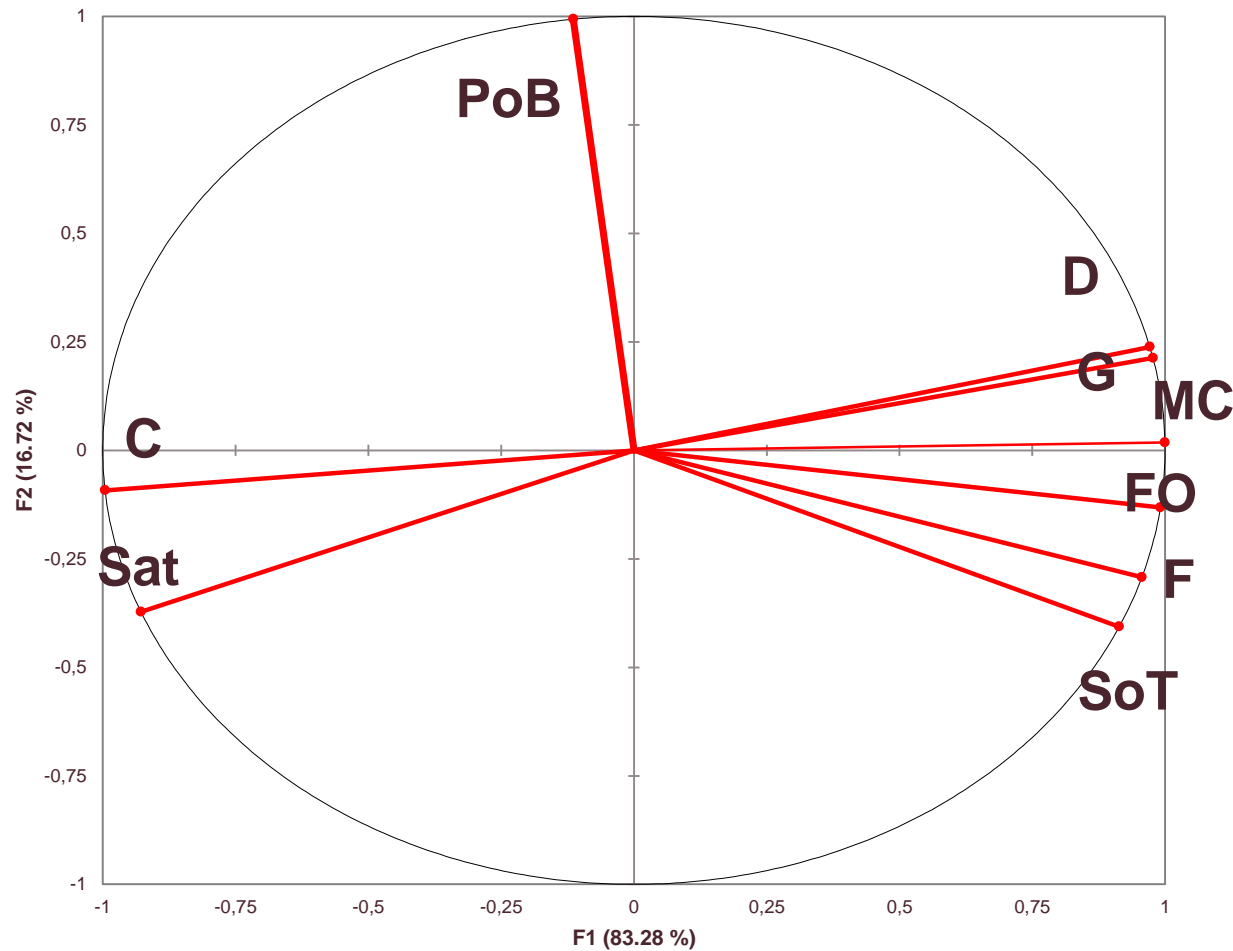
Mean intensity ratings for the sensory attributes of the

Attribute	Chips	Bread Steak	Mini biscuits
Color	8.49	4.68	3.46
Presence Of Bran	4.95	4.87	4.98
Fracturability	7.91	4.82	4.40
Grittiness	2.55	4.35	5.44
Denseness	1.54	6.14	8.66
Mouth Coating	1.68	4.45	5.02
Salty Taste	3.11	3.00	2.89
Sour Taste	1.86	3.60	3.11
Fermented Odor	2.85	4.54	4.56



Sensory quality (Cont.)

Variables (axes F1 and F2: 100.00 %)



PoB= Presence of bran

C= Color

SaT= Salty taste

D= Denseness

G= Grittiness

MC= Mouth coating

FO= Fermented odor

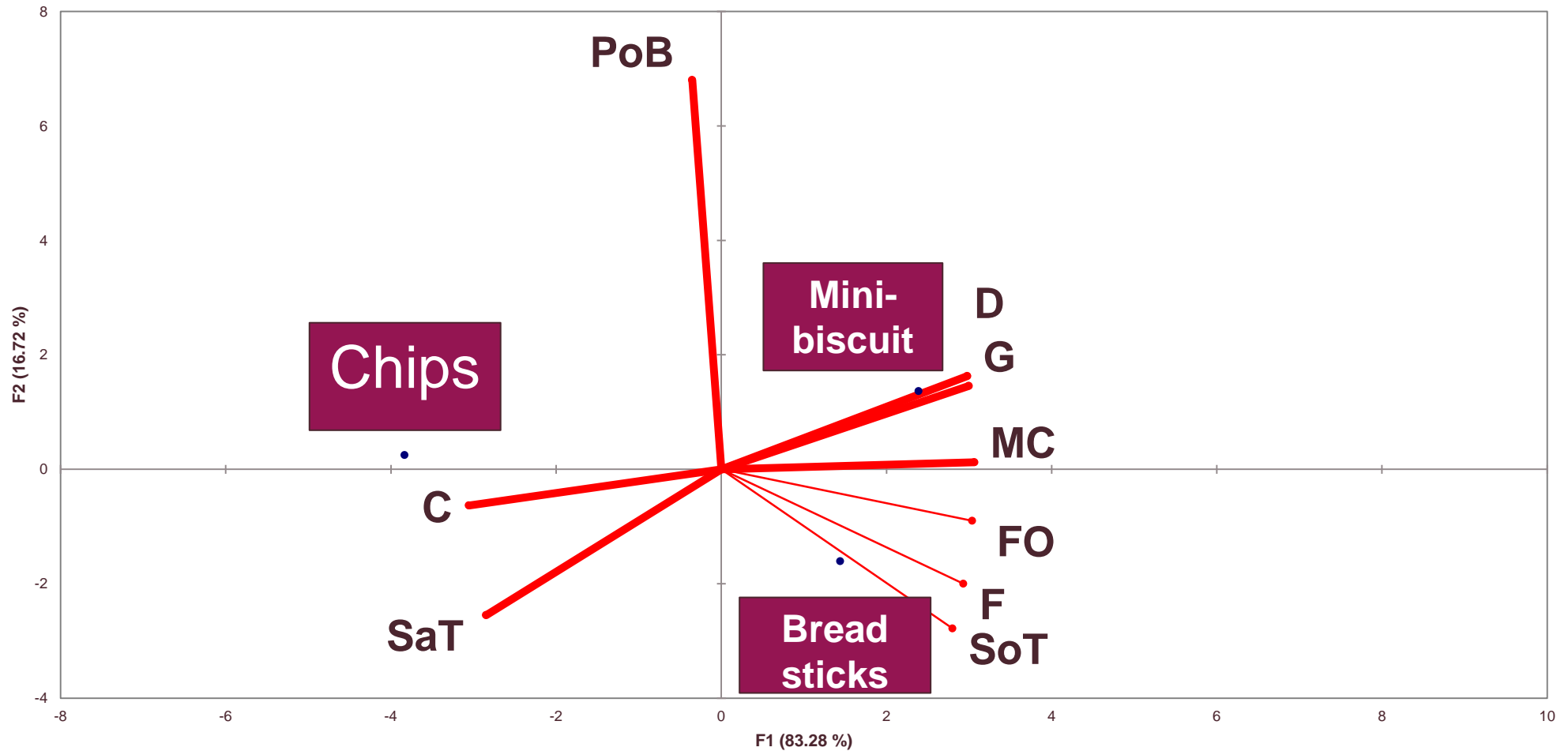
F= Fractureability

SoT= Sour taste



Sensory quality (Cont.)

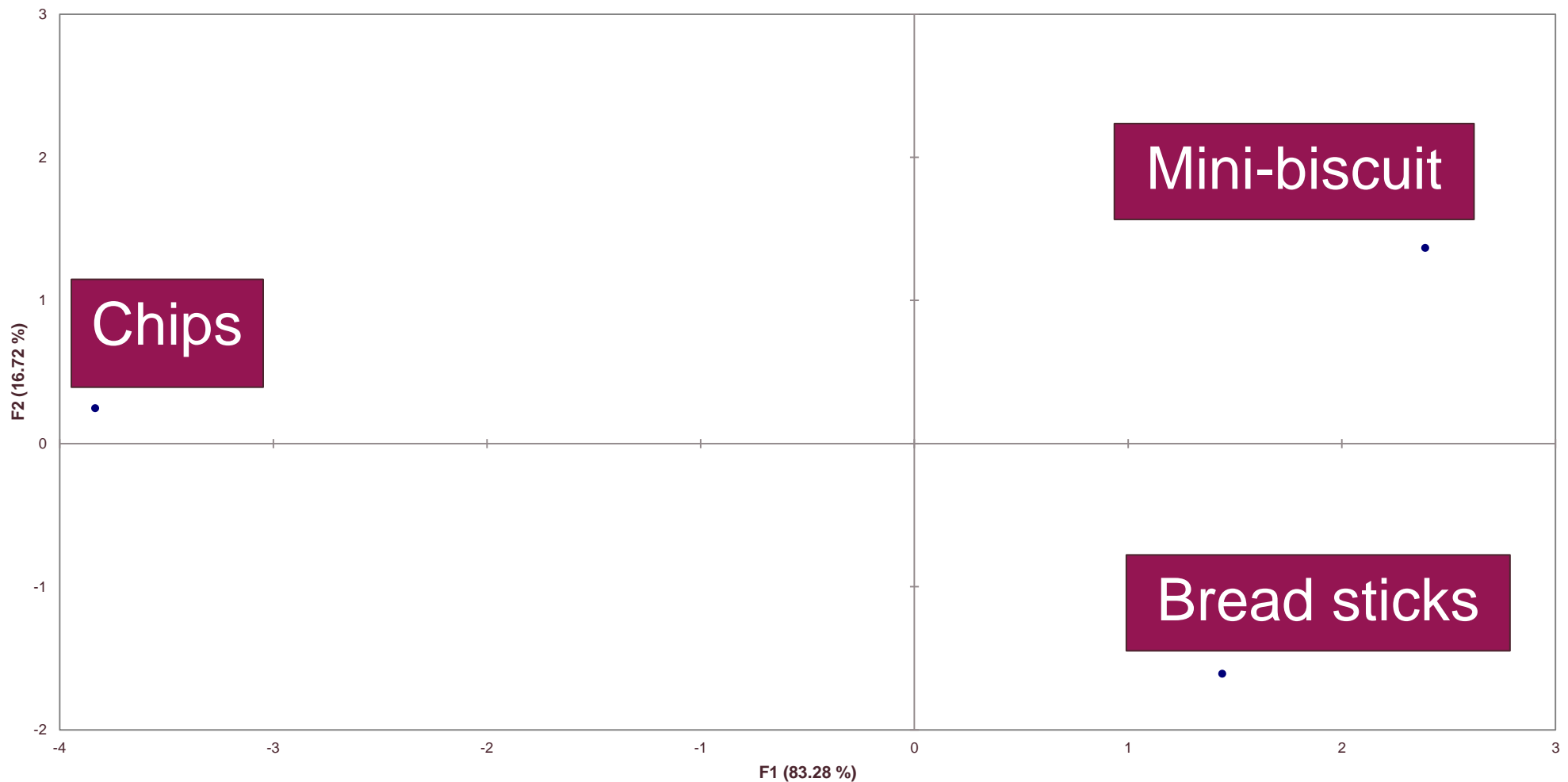
Biplot (axes F1 and F2: 100.00 %)





Sensory quality (Cont.)

Observations (axes F1 and F2: 100.00 %)



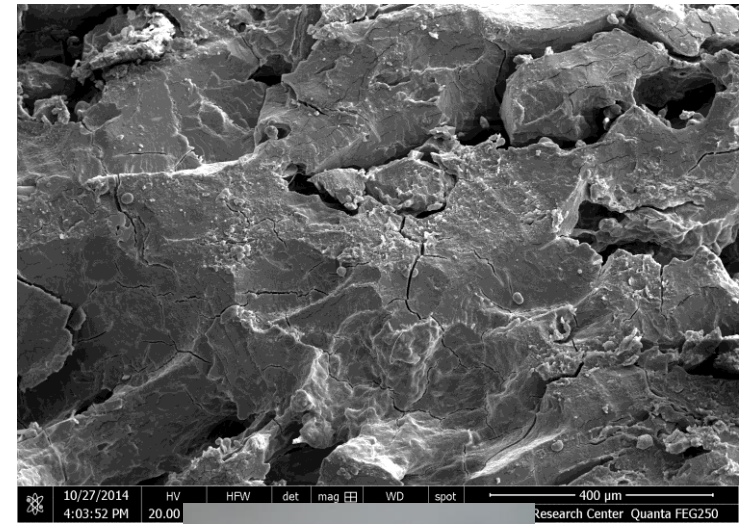
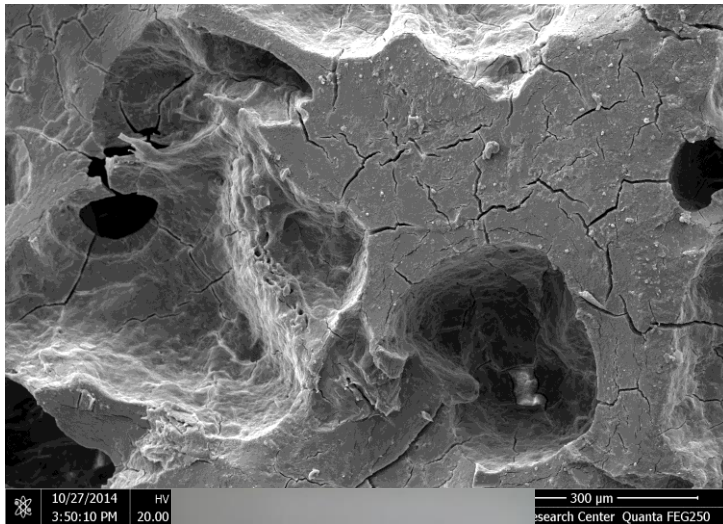
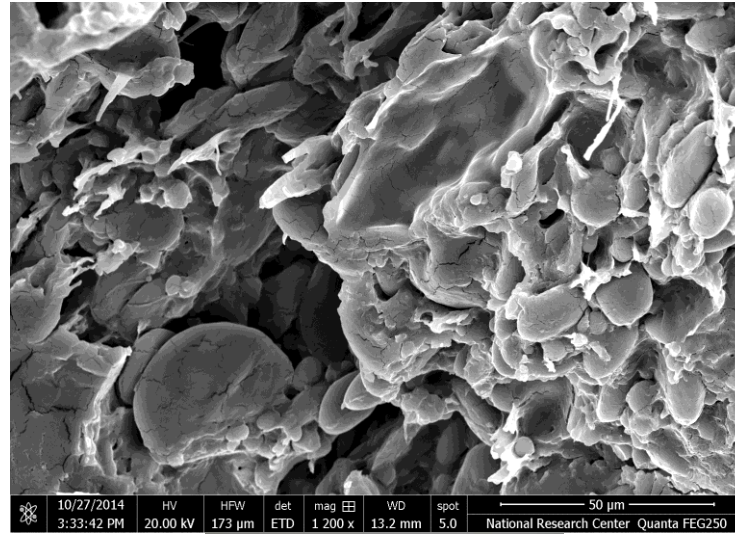


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Micro-structure: Cross section



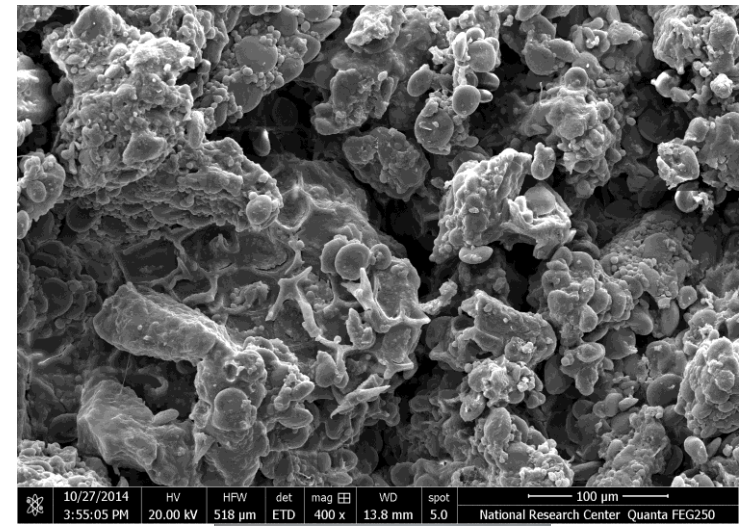
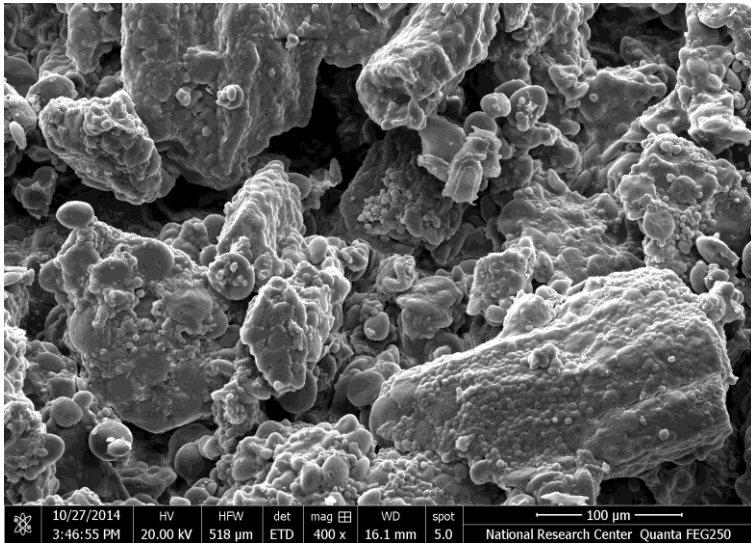
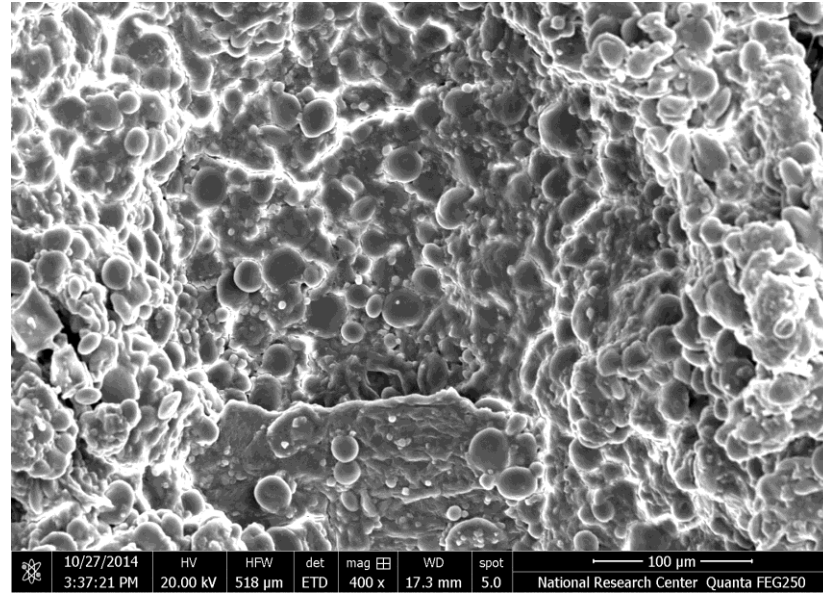


F T E R

Micro-structure: Surface section (Conti.)

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Conclusions

- The importance of this product was:
 - the preparation is simple,
 - the cost is low,
 - nutritive value is high,
 - and enjoy good acceptability i.e. lighter texture and pleasant sour taste.
 - a way for youth to become engaged with their traditions and culture through food.

Conclusions (cont.)

- US Food and Drug Administration (Food and Drug Administration) allows label health claim for food containing 51% whole grains and 11 g of dietary fiber.
- Since most individuals and especially children do not meet the recommended intake of whole grains, such snack would help to meet DF need.

Thank you

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