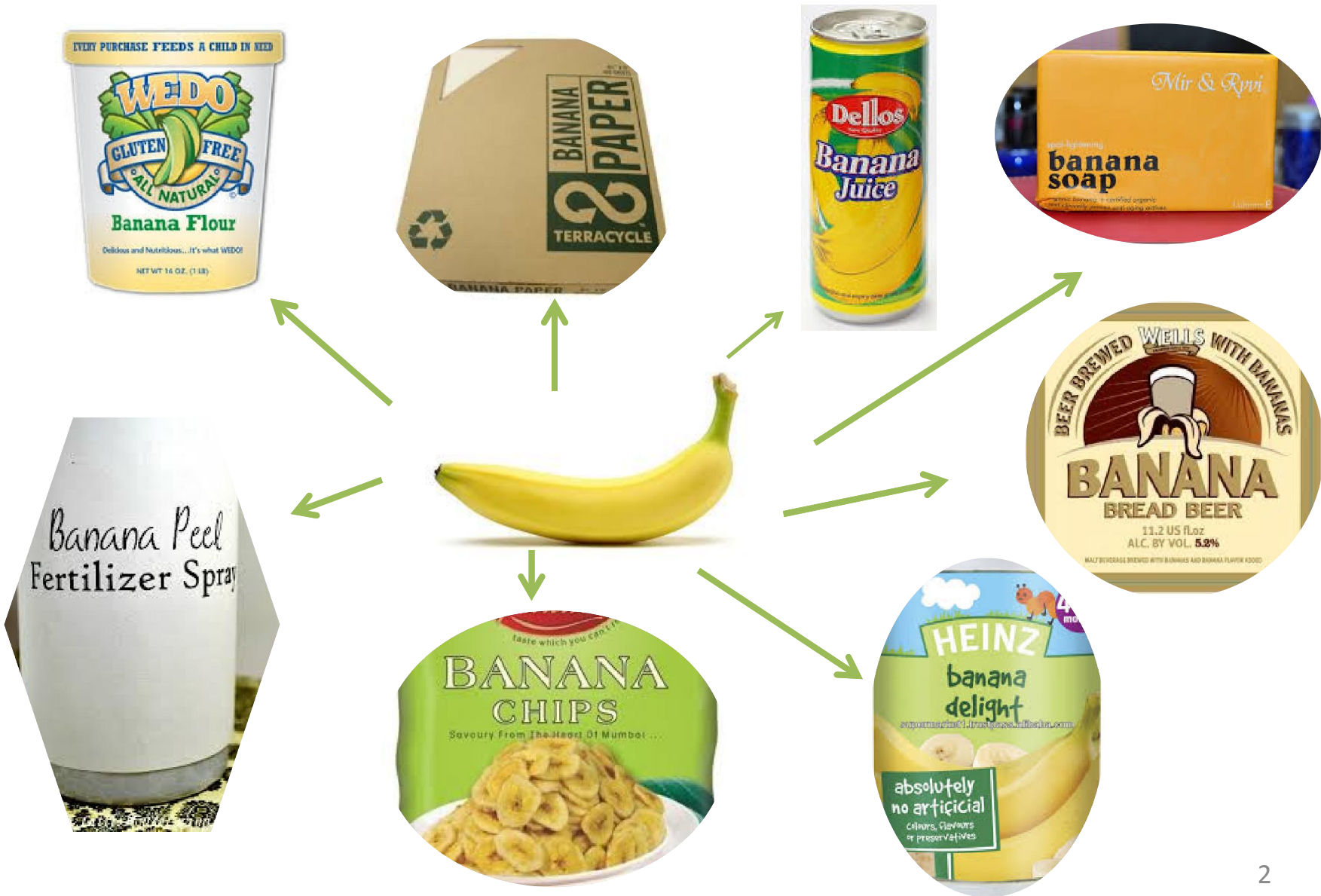


Pre-frying treatments to reduce oil uptake in fried banana chips

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Banana – a versatile fruit



Fried banana chips

- Popular snack food

- Tasty and crunchy texture
- Distinct flavour and freshness
- Cheap and easily available



- Commonly made by deep fat frying (DFF)

- **DFF** ➡ **High fat content (>35%)** ➡ **NCD's**

- Diabetes (23.6%), HBP (37.9%), Obesity (16.0%)

- Overweight (34.9%), High cholesterol (34.7%)

(NCD, 2009 – Mauritian population aged 25-74 years)

Objectives

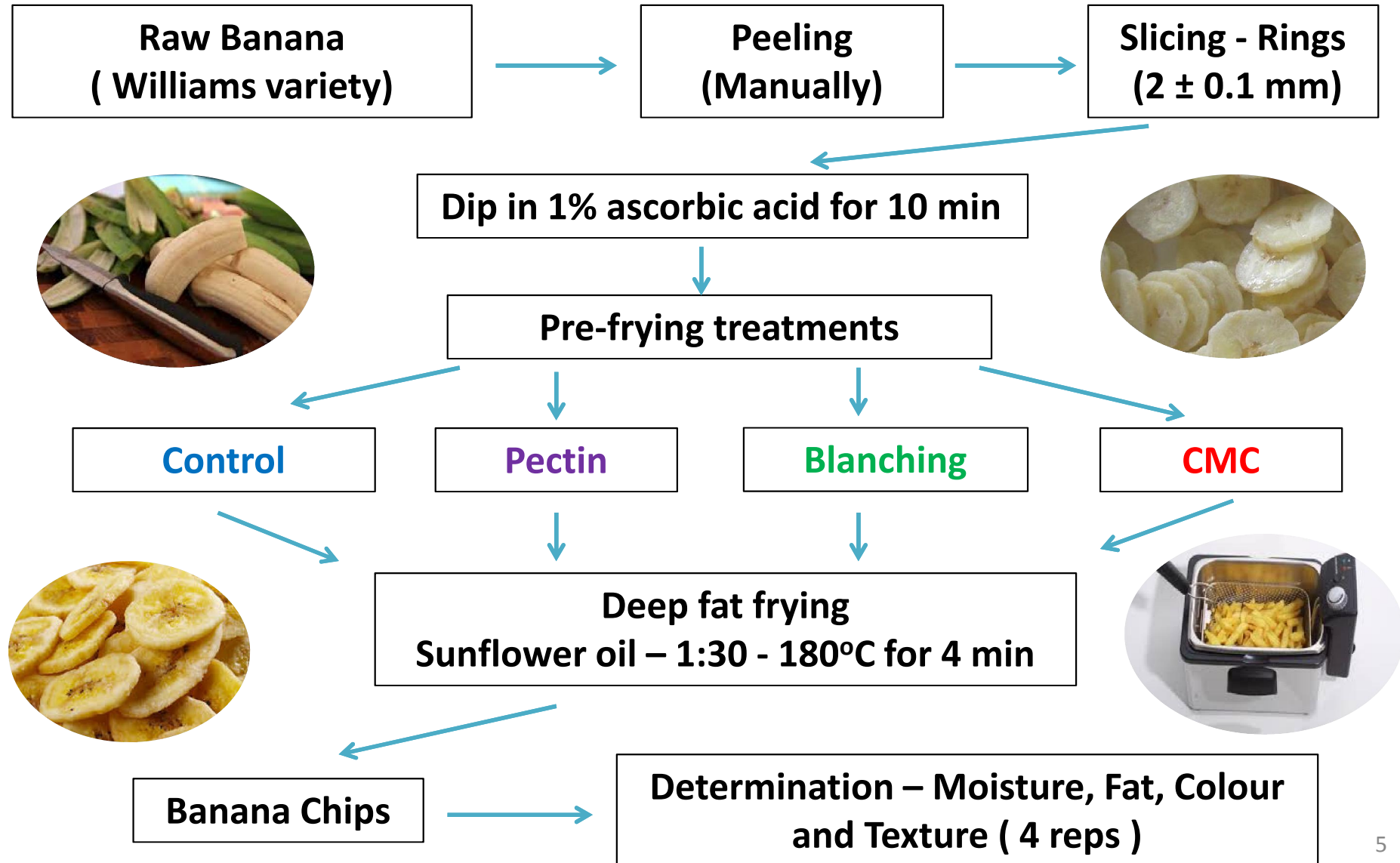
- Reduce oil uptake of fried banana chips using different pre-frying treatments

Pre-frying treatments used:

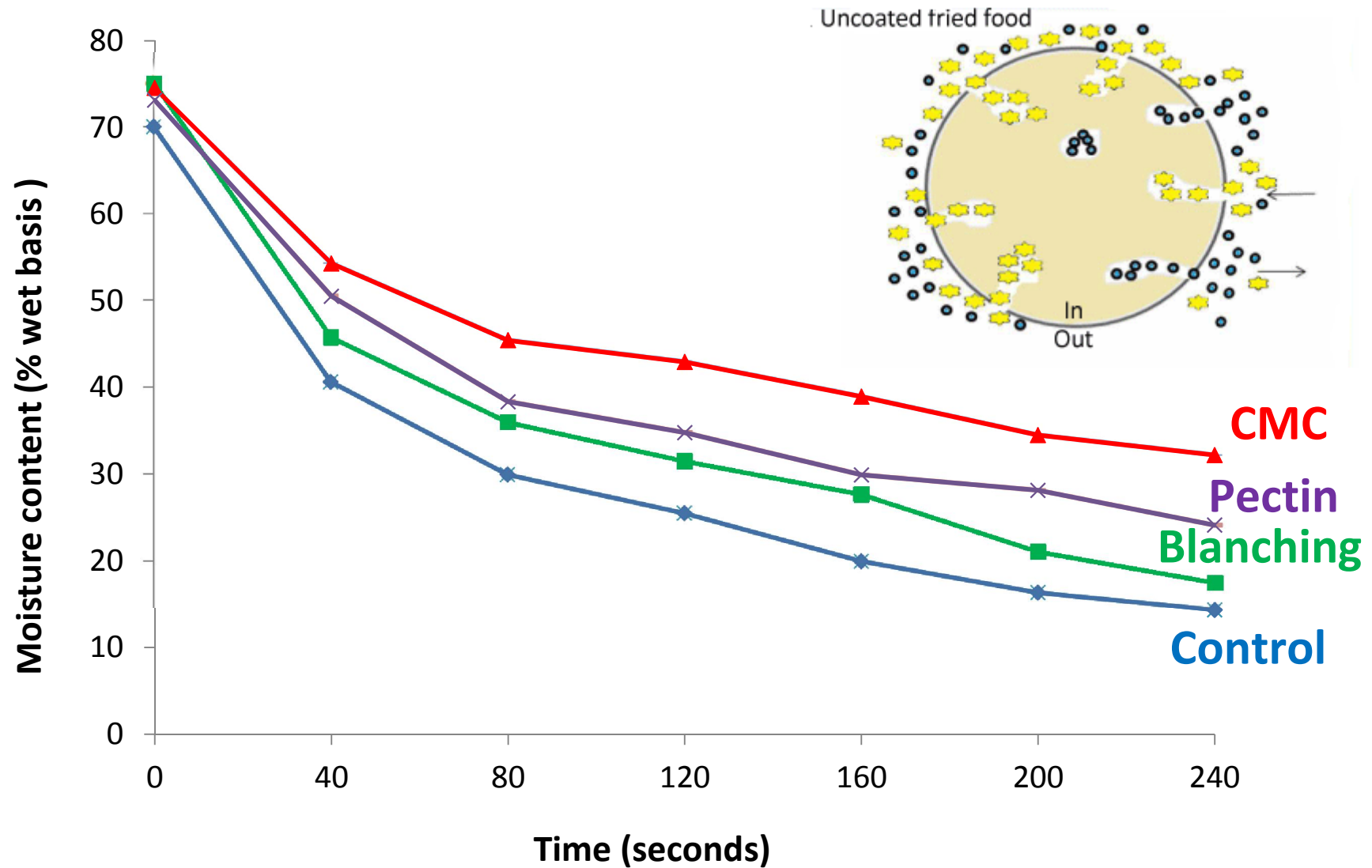
- Blanching at boiling point for 5 min in 3% CaCl_2 **(Blanching)**
- Surface coating with 1g low methoxy pectin and 0.5g CaCl_2 **(Pectin)**
- Surface coating with 1% carboxyl methyl cellulose **(CMC)**
- No pre-frying treatment **(Control)**



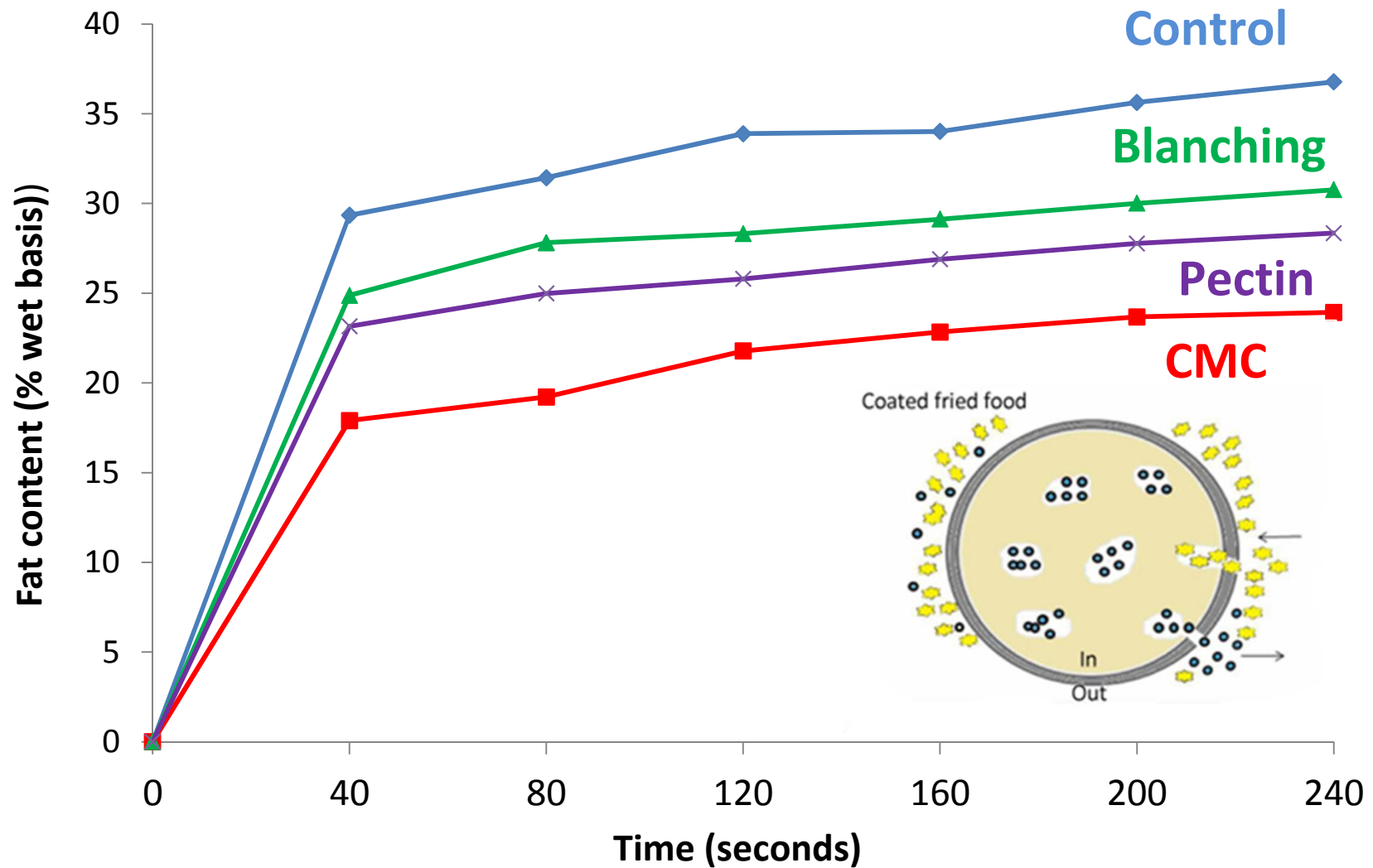
Materials and Methods



Kinetics of moisture loss



Kinetics of fat gain



Colour of banana chips (4 min frying)



Control
($L^* = 55.8$, $a^* = 14.6$, $b^* = 29.3$)



Blanching
($L^* = 61.8$, $a^* = 3.63$, $b^* = 29.0$)

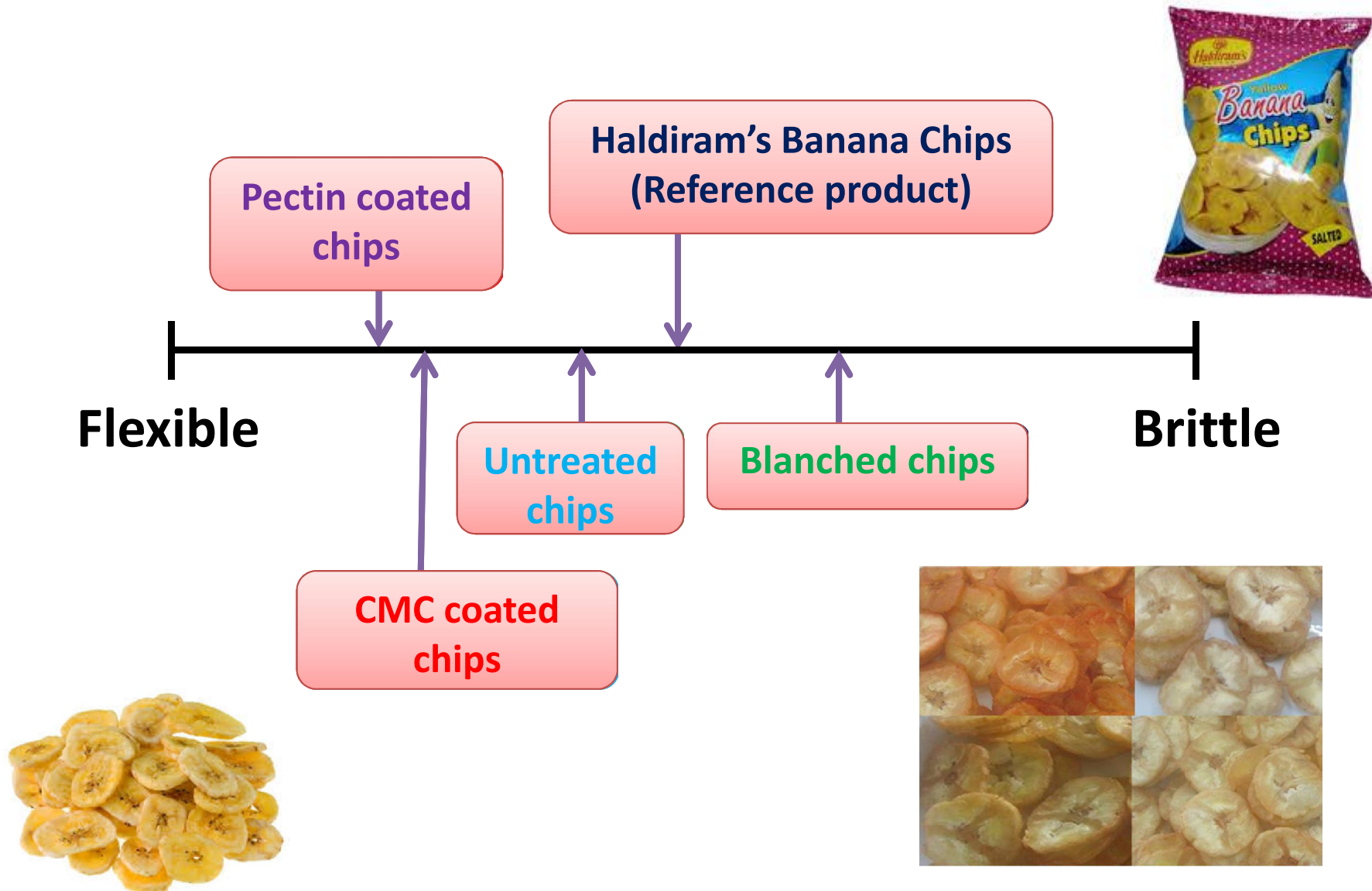


Pectin
($L^* = 60.2$, $a^* = 10.3$, $b^* = 29.8$)



CMC
($L^* = 66.3$, $a^* = 3.9$, $b^* = 30.8$)

Texture of banana chips (4 min frying)



Moisture and fat content (4 min frying)

	Mean \pm sd (n=4)	
Pre- frying treatments	Moisture content (% wet basis)	Fat content (% wet basis)
Control	13.7^a \pm 0.36	31.9^a \pm 0.50
Blanching	15.8^a \pm 0.40	25.5^b \pm 1.32
Pectin	28.5^b \pm 3.54	20.8^c \pm 1.86
CMC	24.9^b \pm 3.55	18.1^d \pm 0.55

Values with different letters in the same column are significantly different ($p < 0.05$)

Conclusions

Hydrocolloid coatings:

- Effectively alter water-holding capacity of fried banana chips by trapping moisture inside
- Prevent excessive oil absorption during the frying process
- Produce banana chips with acceptable colour and texture
- Novel, practical and low cost approach
- Easily implemented in SME's involved in banana chips production common to Mauritius and other countries in the region

Future Work

- Optimise the pre-frying treatment conditions
 - Concentration of hydrocolloids
 - Frying conditions (Temperature, frying time)
- Shelf-life studies of fried banana chips
- Sensory evaluation
 - Product profile
 - Consumer acceptance



The background of the slide is a close-up, repeating pattern of golden-brown, circular banana chips. The chips are piled together, showing their textured, slightly irregular edges and the characteristic shape of a sliced banana. The lighting is warm, highlighting the natural color of the dried fruit.

**THANK YOU FOR YOUR KIND
ATTENTION**

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