CIP INTERNATIONAL POTATO CENTER
A CGIAR RESEARCH CENTER

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Evaluating Ten (10) genotypes of sweetpotato for fries

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Introduction





Intro cont'd

- Snacks have gained prominence in Ghana
  - Fries; increasing popularity

Limited information on the end-uses of newly released sweetpotato varieties and genotypes from advanced trials of the CIP-breeding program

Objectives

- To determine the dry matter of fresh roots
- To determine the sensory properties of the sweetpotato fries
- To determine fat, moisture, colour and β-carotene content of the fries

Methodology

- Ten genotypes used; ***Apomuden, Otoo, Dadanyuie, Bohye, Patron, Obare, Nanungungu, Tu-purple, CIP442162, CIP440390***

- Dry matter of raw roots (Kathabwalika *et al*., 2016)

- Sensory evaluation (QDA) (8 trained panelists) (Chaoruangrit, 2014)

Methodology

- Frying experiment
  - Sample dimension: 0.7x0.7x7.5cm
  - Temperature and time: 175°C; 5min
- Fat and moisture of fries (AOAC, 1990)
- β-carotene (Imungi and Wabule, 1990)
- Colour (Konica chromameter CR-410) (Oner and Wall, 2013)
- Browning Index: BI= $100(x-0.31)$

$$\text{where } x = \frac{a^* + 1.75\,L^* \times 0.17}{5.645L^* + a^* - 3.012b^*}$$

(Elleason, 2015)

Findings

Findings (Dry matter)

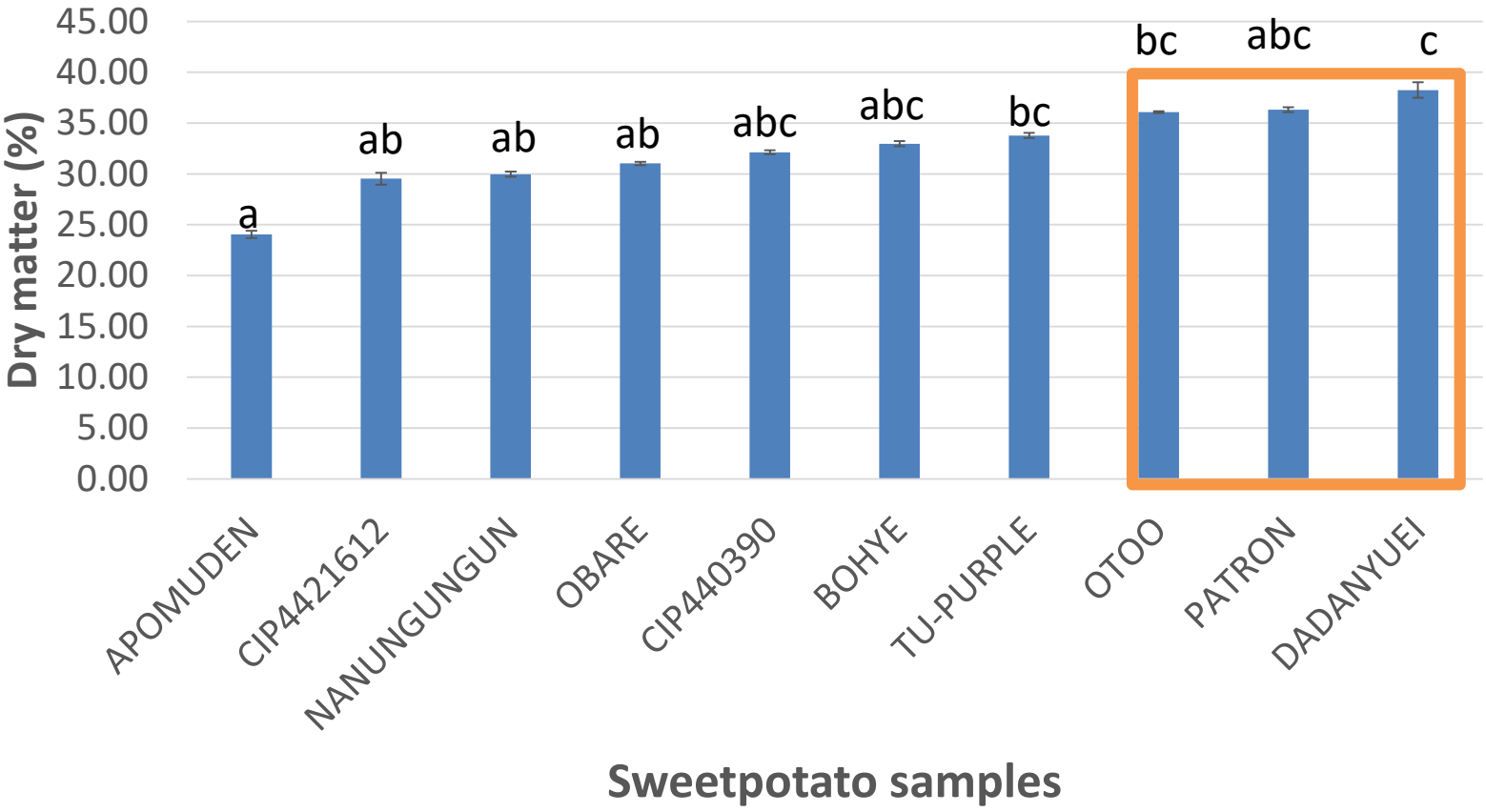


Fig 1: Dry matter content of sweetpotato roots

Findings: sensory evaluation

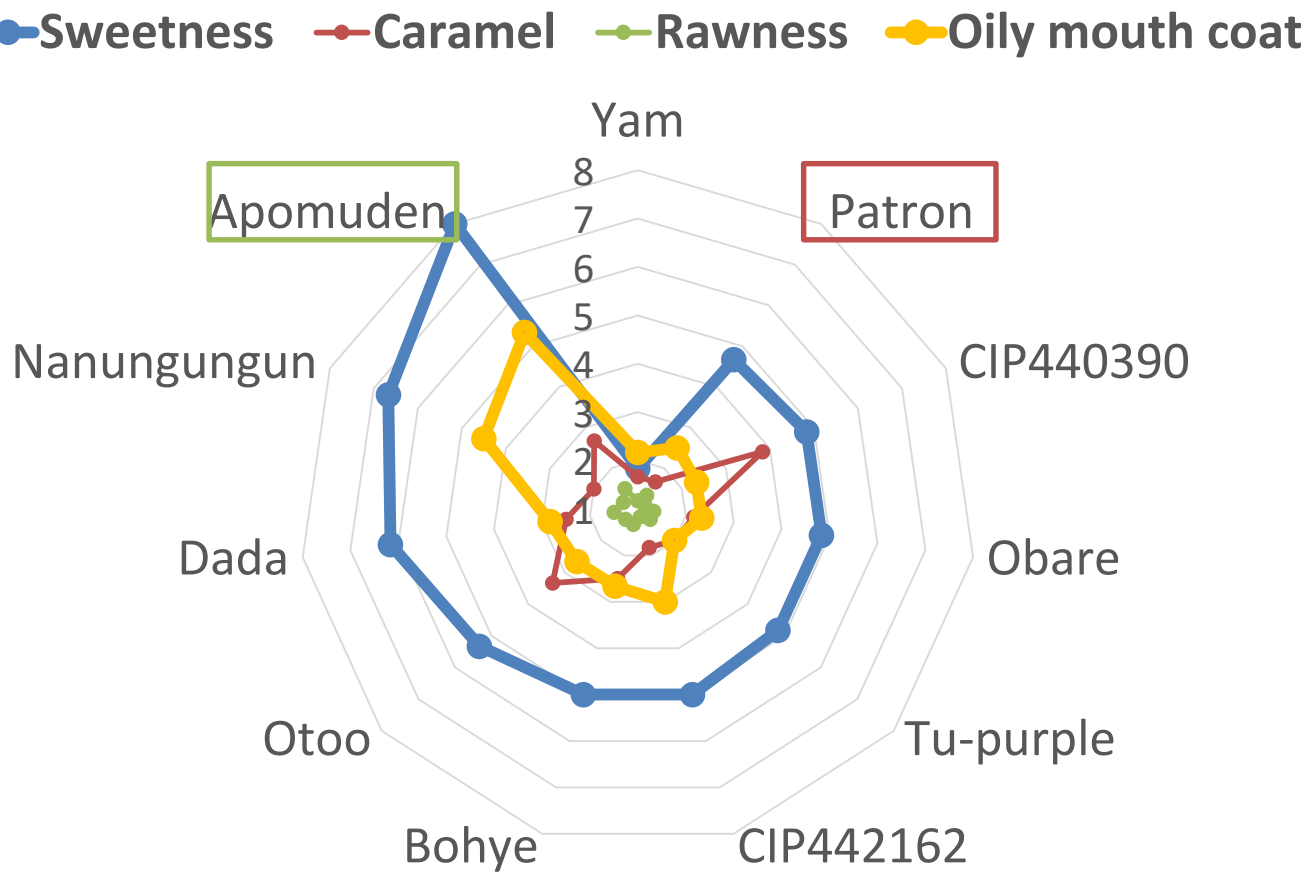


Fig 3: Taste score for sweetpotato fries

Findings: sensory evaluation

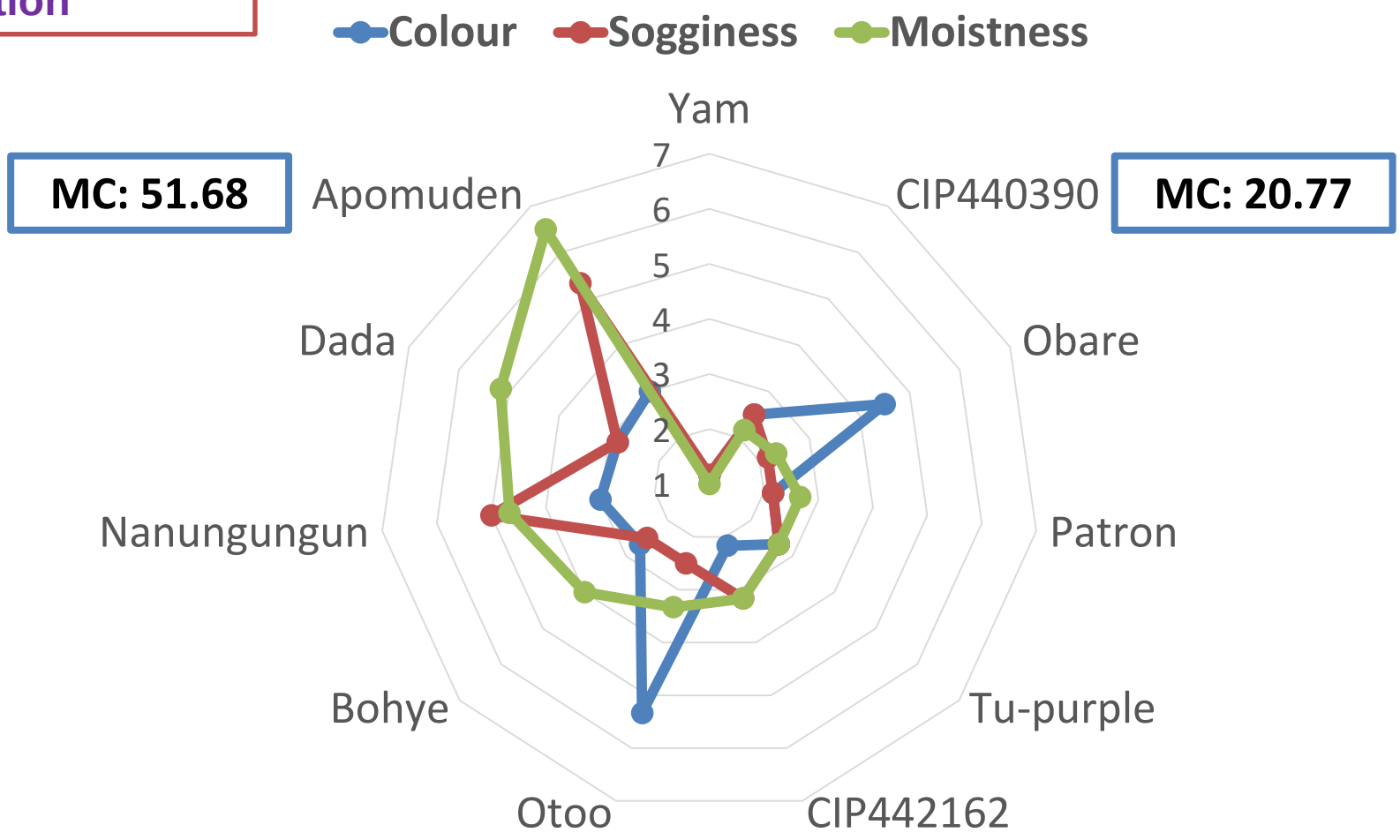


Fig 4: Appearance score for sweetpotato fries

Findings…

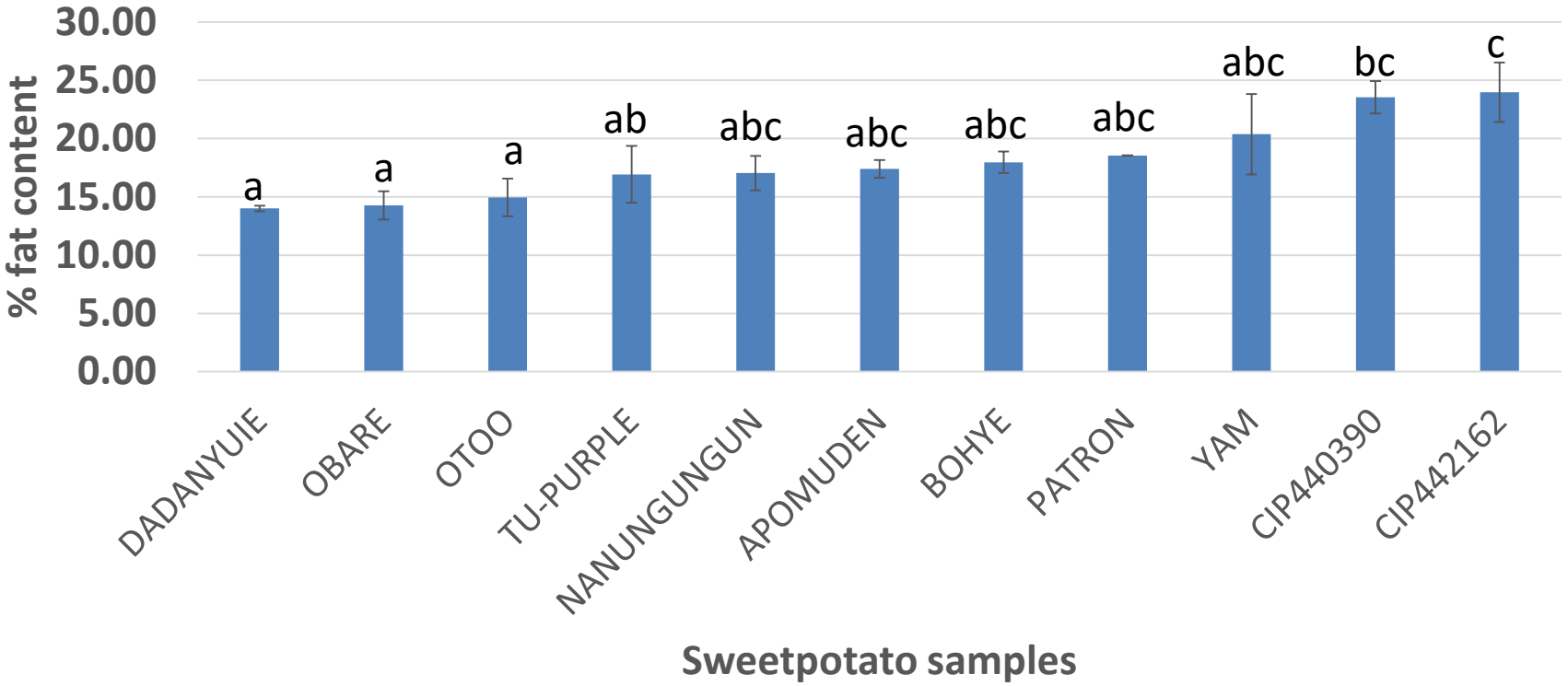


Fig 6: Fat content of sweetpotato fries

- > Odenigbo *et al. (*2012)
- < Esan *et al. (*2015)

Findings: sensory evaluation

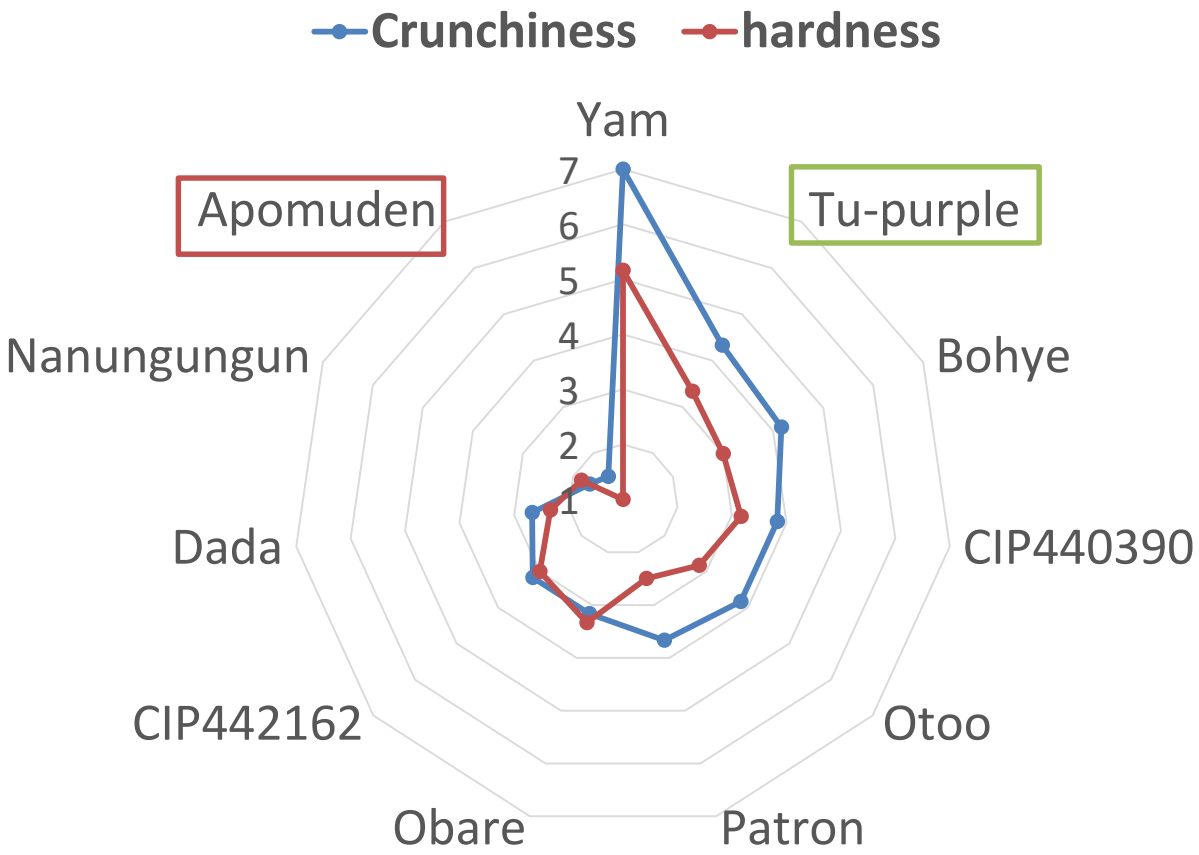


Fig 5: Texture score for sweetpotato fries

Findings…

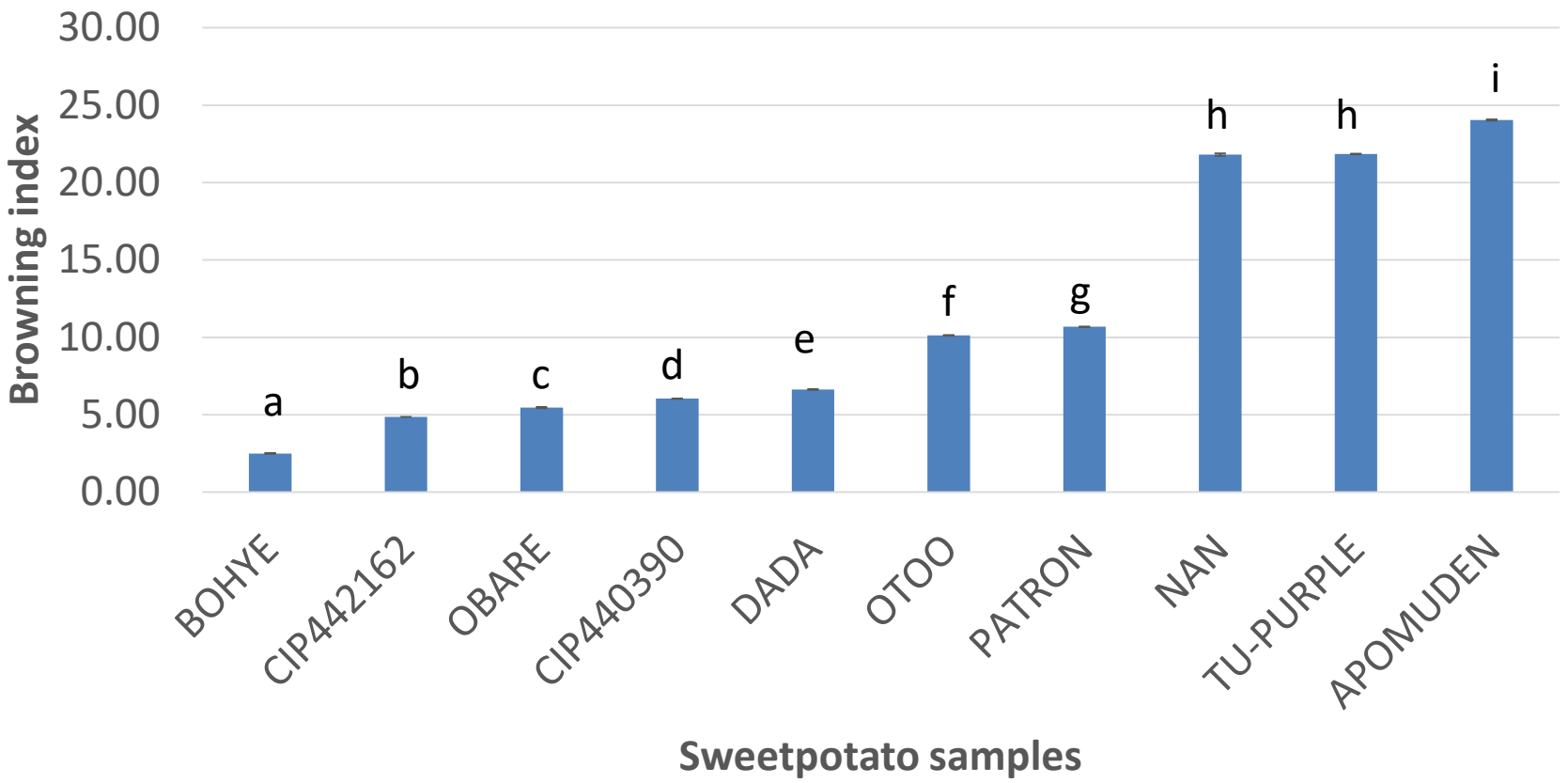


Fig 7: Browning index of sweetpotato samples

There are no significant differences ($p>0.05$) between Nane and TU-purple

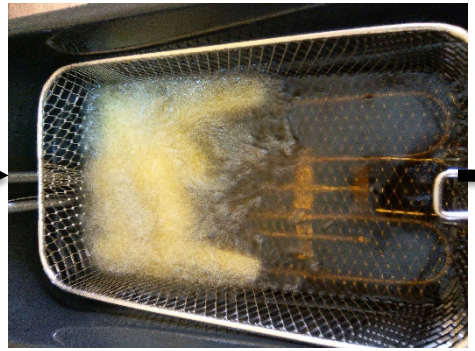
Findings…

Table 1: Beta-carotene content of selected raw and fried sweetpotato

Genotype	Beta-carotene content (µg/100g)		% loss of Beta-carotene
	Raw sample	Fried sample	
Bohye	330.76 (12.84)a	184.32 (2.19)a	44.27
Apomuden	6205.07 (39.84)b	4281.11 (30.05)b	31.01
Nanungungun	5715.45 (33.18)c	4961.23 (51.44)c	13.20

Values are represented as mean (standard deviation)

Conclusion



Conclusion

- *Apomuden* had the least dry matter content and its fries had the highest sweetness score
- Sensorial attributes varied among the studied genotypes
- Browning index was highest in the orange fleshed and purple genotypes
- *Nanungungun* had the highest beta-carotene retention

Conclusion

- TU-Purple, *Bohye* and CIP440390 were the most suitable for fries

Appreciation

- International Potato Center (CIP-Ghana), Fumesua, Ghana

Thank You

References

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