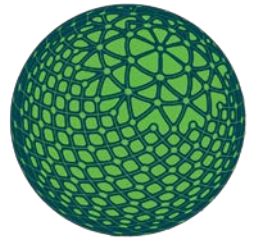




This project has received funding from the European Union's horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 764985.



EDULIA

The ability of 10 to 11-year old children to identify basic tastes in unfamiliar foods

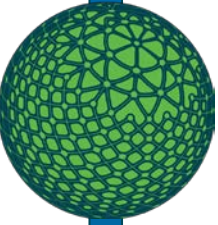
Ervina, Ingunn Berget, Alexander Nilsen, Valerie L. Almli

SAPERE SYMPOSIUM, OCTOBER 24-25TH, 2019, CAMBRIDGE



Valérie Almli, PhD
Senior scientist





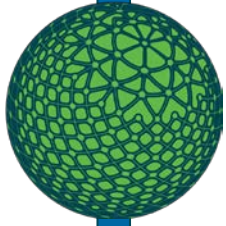
What is the taste of lemon juice?



Lemon Juice



Sour



What is the taste of...

Kumquat



Beef Jerky



???

8TH E3S & SISS SYMPOSIUM "TASTING
THE FUTURE IN SENSORY AND
CONSUMER SCIENCE"

ORGANISED IN COLLABORATION WITH THE ITALIAN SENSORY
SCIENCE SOCIETY AND THE UNIVERSITY OF MILAN

28 MAY 2019

VIA FESTA DEL PERDONO, 7 MILANO



The ability of 10 to 11-year-old children to identify the basic tastes of unfamiliar foods

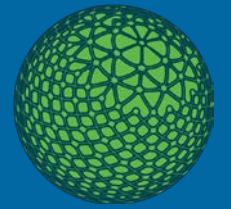
Ervina

PhD candidate

Nofima, Norway

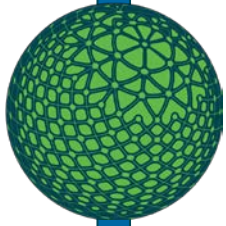
Edulia-ITN-Marie Curie

Taste Sensitivity and Familiarity of the Foods

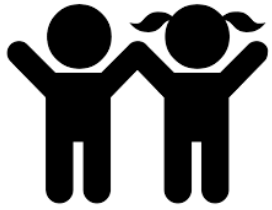


- Children have their own taste perception
- Familiarity of food can influence taste perception

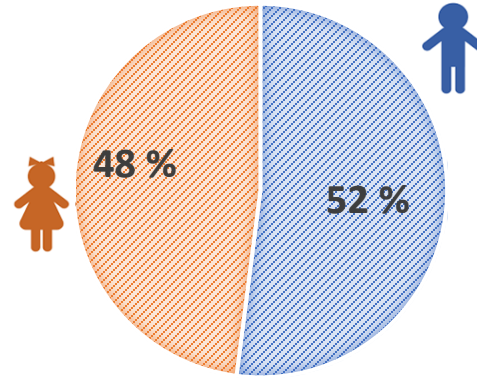
James et al., (1999)
Popper and Kroll, (2011)
Laureati et al., (2015)
Laureati & Pagliarini, (2018)



Methods



98 Children, 5th grade
(10-11 years old)



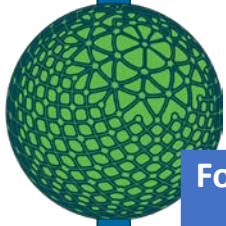
19 unfamiliar food samples evaluated over 3 weeks



Rate liking and dominance sensation of basic taste for sour, salty, sweet, bitter



- BITTER
- SOUR
- SALTY
- SWEET



Food samples

Food Group	Food Samples	Dominant Taste	
Dairy	Goat Cheese	Sour	
	Sour milk	Sour, bitter	
Meat based	Cocktail salami	Salt	
	Chorizo	Salt, sweet	
	Beef jerky	Salt, sweet	
	Crab stick	Salt, sweet	
	Durum wheat semolina	Sweet	
Cereals	Bulgur	Sweet	
	Cucumber pickle	Sour	
Fruit and vegetables	Grapefruit	Sour, bitter	
	Persimmon	Sweet	
	Artichoke heart	Sour, salt	
	Goji berry	Bitter	
	Kumquat	Sour, bitter	
	Water chestnut	Bitter	
	Carrot juice	Sweet	
	Sweets	Coconut cubes	Sweet
		Root beer*	Sweet
Ginger candy		Sweet	



Trained panelist at Nofima



- Trained-panelist select the most dominance basic taste sensations by CATA method

*Vørterøl: alcohol-free carbonated drink (beer that has not gone through fermentation)

Food samples

Food Group	Food Samples	Dominant Taste	Unfamiliarity (%)*	Tasting (%)**
Dairy	Goat Cheese	Sour	93.1	95.7
	Sour milk	Sour, bitter	72.7	91.8
Meat based	Cocktail salami	Salt	90.1	96.4
	Chorizo	Salt, sweet	84.3	96.6
	Beef jerky	Salt, sweet	88.0	95.5
	Crab stick	Salt, sweet	80.8	88.9
Cereals	Durum wheat semolina	Sweet	64.0	100
	Bulgur	Sweet	92.6	98.9
Fruit and vegetables	Cucumber pickle	Sour	77.1	89.4
	Grapefruit	Sour, bitter	84.3	97.8
	Persimmon	Sweet	81.1	97.8
	Artichoke heart	Sour, salt	97.6	93.4
	Goji berry	Bitter	91.7	98.8
	Kumquat	Sour, bitter	94.1	95.6
	Water chestnut	Bitter	78.2	95.7
	Carrot juice	Sweet	85.2	100
Sweets	Coconut cubes	Sweet	90.5	97.7
	Root beer	Sweet	64.4	97.8
	Ginger candy	Sweet	94.0	95.5
Mean ± SD			84.4 ± 9.5	96.0 ± 3.1

- *% of children never tasted the food before
- **% of children taste the food samples



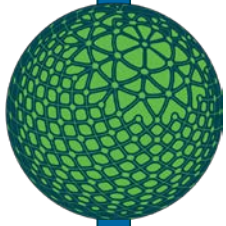
Trained panelist at Nofima



Children



- Trained-panelist select the most dominance basic taste sensations by CATA method

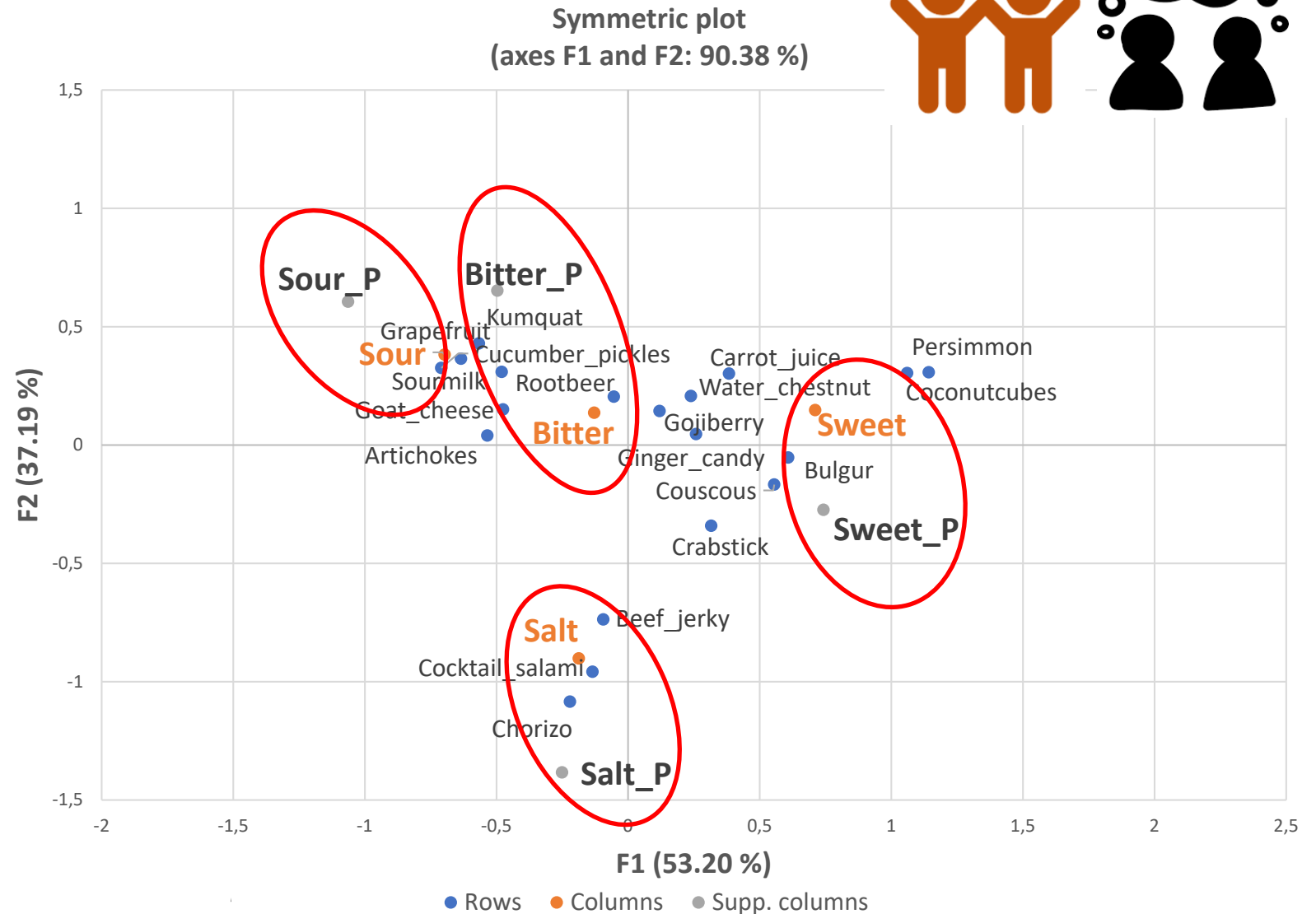


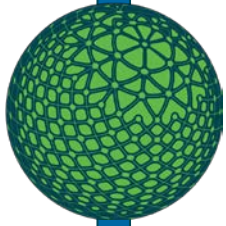
Children vs. Panel Taste Identification



Children taste identification ability showed to be similar to the trained panel

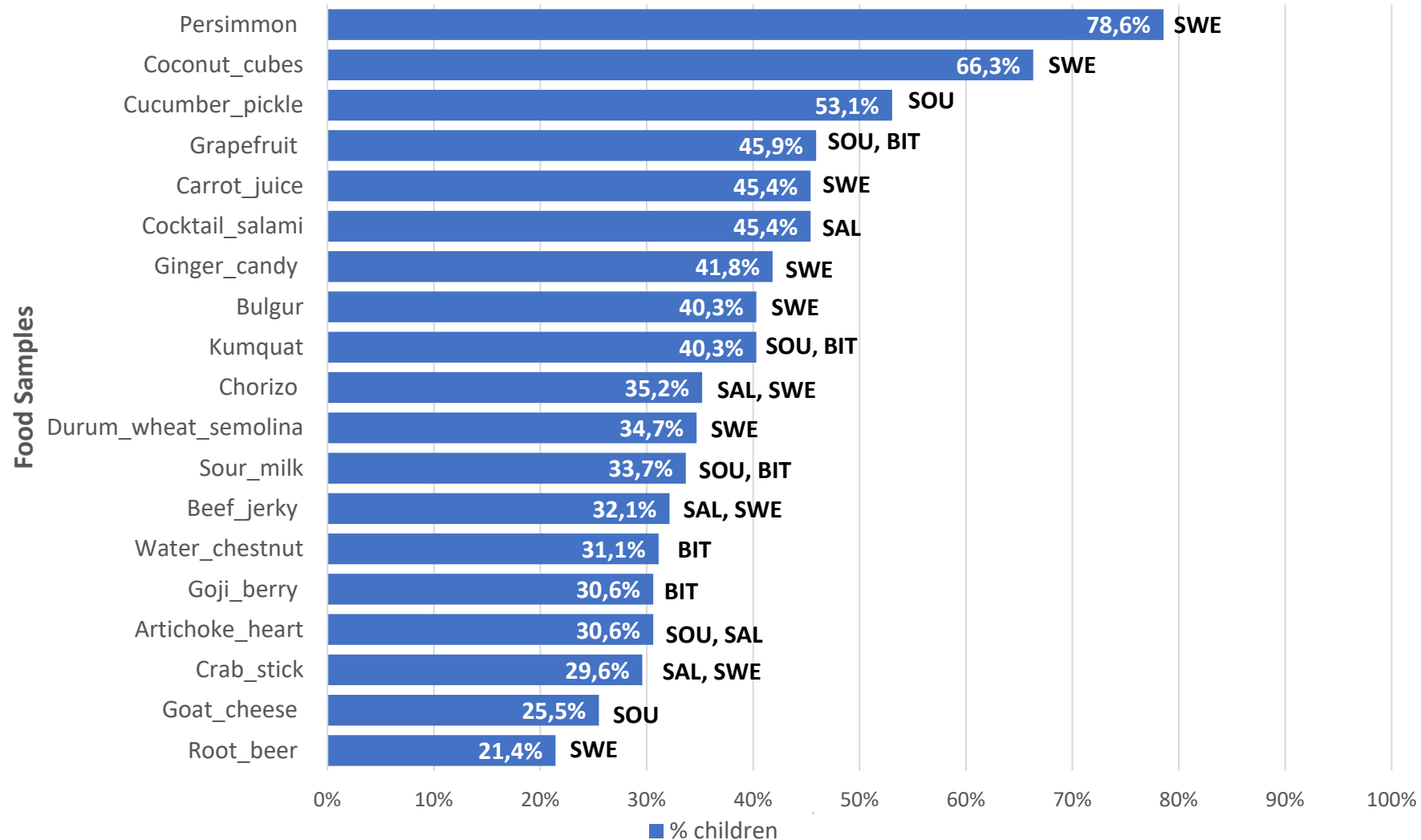
RV coefficient	P-value
0.922	0.000**



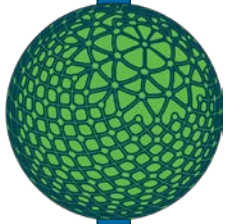


Children's Taste Identification Ability

% Children Correctly Identified Dominance Tastes in Food Samples
(Taste Correctness)

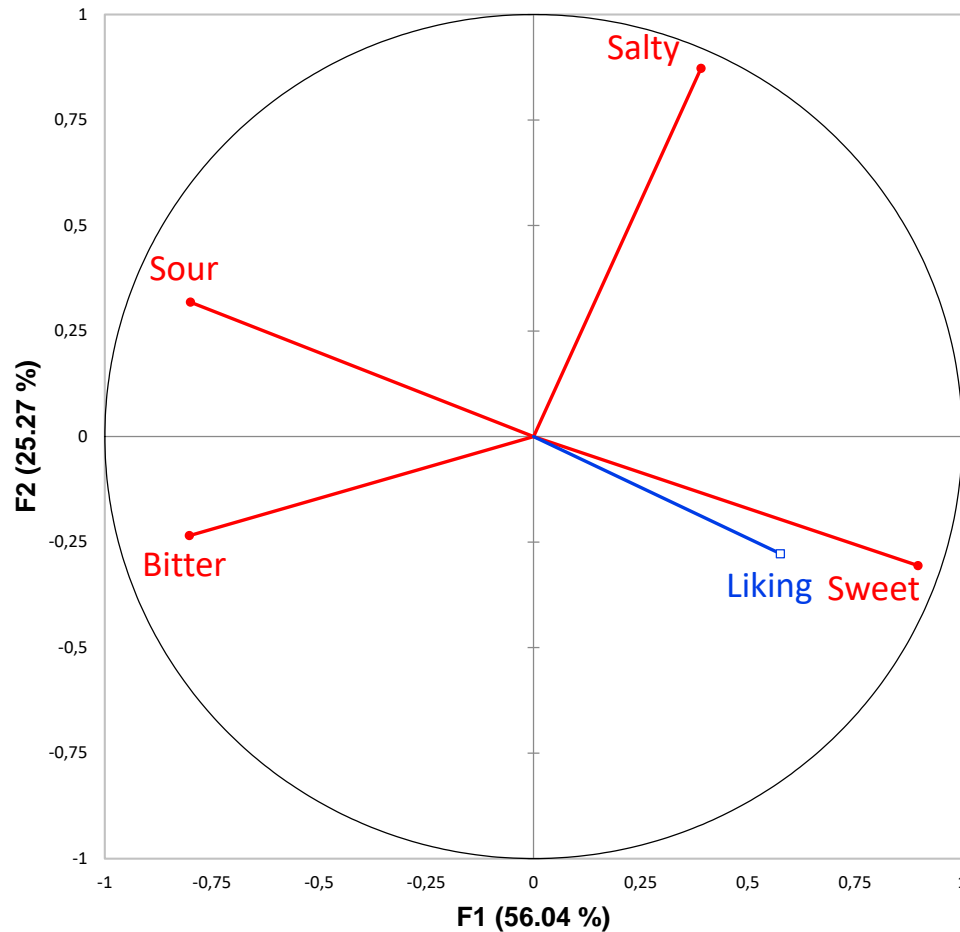


- Sweet is the most correctly identifiable taste by children
- Bitter is the least identifiable



Taste and Liking

Variables (axes F1 and F2: 81.31 %)



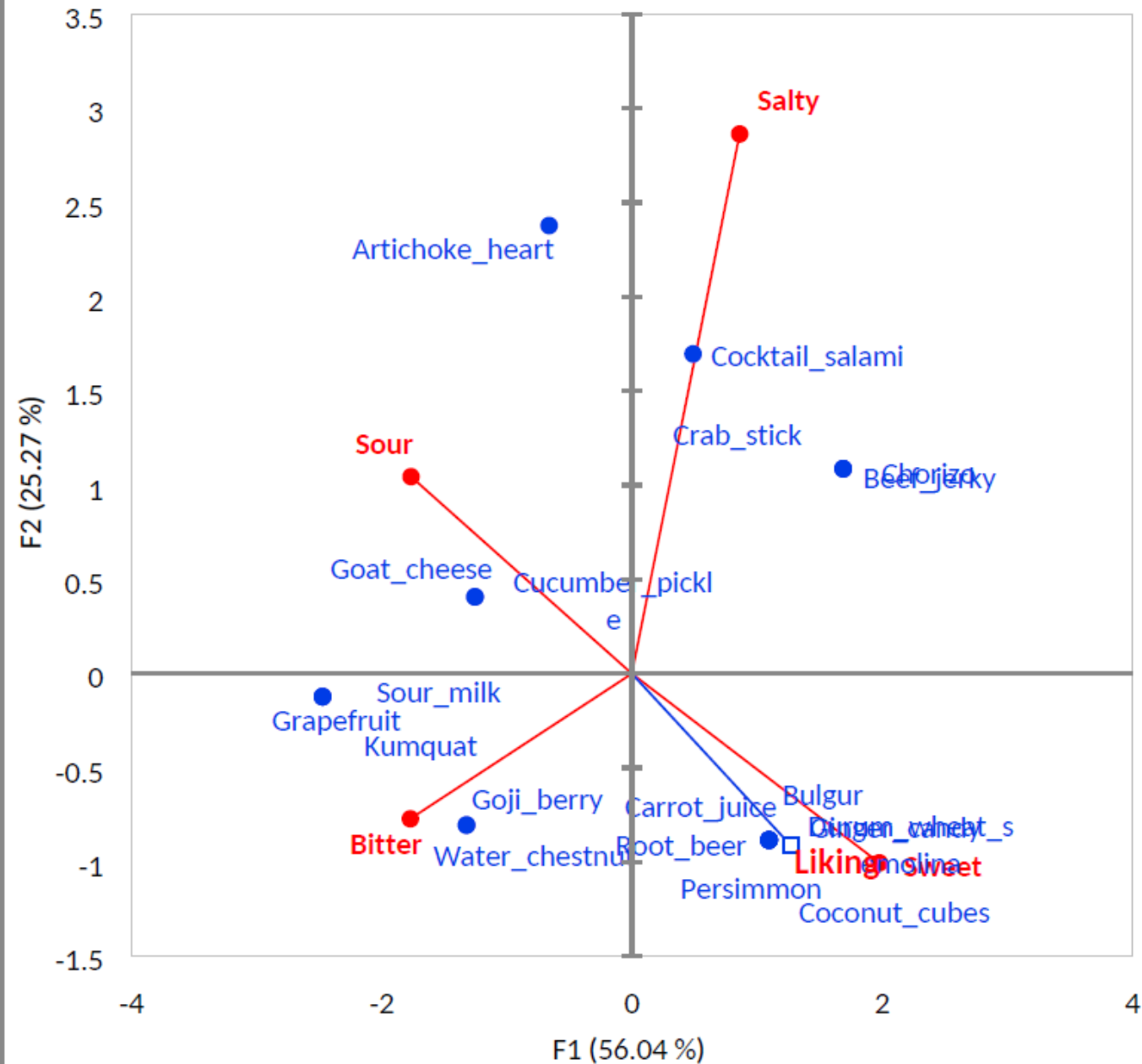
• Active variables

□ Supplementary variables

- Liking positively correlated with sweet
- Sour and bitter negatively correlated with liking

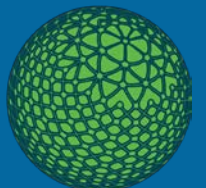


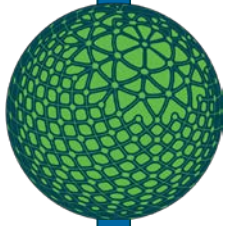
Biplot (axes F1 and F2: 81.31 %)



Taste and Liking

- No relation found between taste identification and liking





Conclusion

- Children are able to identify the basic tastes of sweet, sour, salty, and bitter in unfamiliar food products
- The presence of sweet taste and absence of sour taste drive children's liking
- No association was found between taste identification ability and children's liking

Recommendation

- Umami taste
- Children's perception threshold and identification ability of the basic tastes (ongoing study)

Thank You For Your Attention!



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- Ervina Ervina, Ingunn Berget, Alexander Nilsen, Valerie L. Almli (submitted). The ability of 10 to 11-year old children to identify basic tastes in unfamiliar, *Food Quality and Preference*
- Alexander Nilsen (2014). Barns holdning til ukjent mat - effekt av hyppig mateksponering (*Children's attitude to unfamiliar foods – effect of frequent exposures*). MSc thesis, University of Oslo, Norway.