

INTERNATIONAL SYMPOSIUM ON BEE PRODUCTS, 3rd EDITION

Opatija, Croatia - September 28th - October 1st, 2014



World Network of Honey and Bee Product Science

International Honey Commission

Sensory Analysis Working Group



Consiglio per la Ricerca e sperimentazione in Agricoltura
Honeybee and Silkworm Research Unit

GIAN LUIGI MARCAZZAN

gianluigi.marcazzan@entecra.it

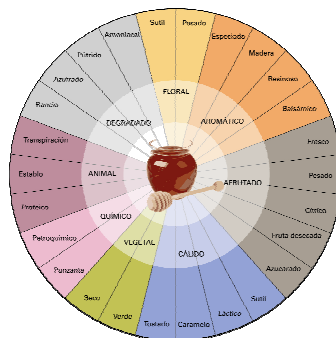
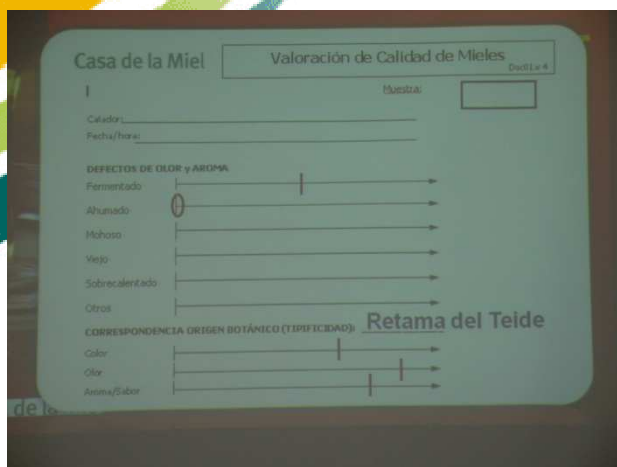
Workshop OPATIJA 2014, September 28th

IHC Sensory working group

PROGRAM of the workshop

- *Work done and results*
- *1st Latin-American workshop on sensory analysis - Antonio Bentabol*
- *Smelling and testing references - practical exercises and discussion*
- *Quantitative and gustatory references - discussion*
- *Future activities and conclusion*

Workshop BRAGANÇA 2012 - re-starting the works



19/12/2014

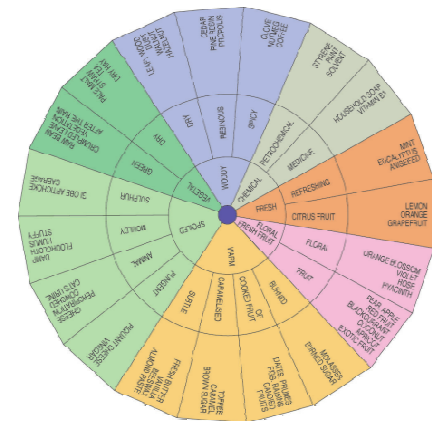
Sensory survey - Most urgent or interesting topics

- Harmonizing:
 - profile methods
 - share qualitative references
 - share quantitative references
 - routine methods
 - contest criteria
 - simplified methods
 - ring trial
- Descriptions of new honey types (European and of other continents)
- Other bee products

Workshop BRAGANÇA 2012 - Decision for next steps

- Definition of qualitative and quantitative standards

- choose common references
- update and harmonise the wheels



- Development of a common descriptive method

Workshop TENERIFE 2013, May 13th/14th

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Katja Bohm

Intertek Food Services GmbH, Germany

Mojca Korosec, Jasna Bertoncej

Dep. Food Science & Techonlogy, Biotechnical Faculty, University of Ljubljana, Slovenia

Joana Godinho

National Institut of Biological Resources (INBR) - Posto Apicola (National Beekeeping Center), Portugal

Katharina Bieri

Biologisches Institut für Pollenanalyse, Swiss

Gian Luigi Marcazzan

CRA-API, Italy

Lucia Piana

Piana Ricerca e Consulenza srl, Italy

Antonio Bentabol

CASA de la Miel, Spain

Drazen Lucic

Department of Environmental Health, Faculty of Medicine, University of Rijeka, Croatia

Bade-Wegner

Quality Services International GmbH, Germany

Gudrun Beckh

Quality Services International GmbH, Germany

Ana Pascual Maté

University of Burgos. Department of Food Science and Technology, Spain

Hana Vinsova

Bee Research Institute, Czech Republic

Christina Kast

Agroscope Liebefeld Posieux, Swiss

Monique Morlot

Laboratoire Famille Michaud Apiculteurs, France

Susanne Hanewinkel-Meshkini

CVUA - Ostwestfalen Lippe, Germany

Carine Massaux

CARI asbl, Belgium



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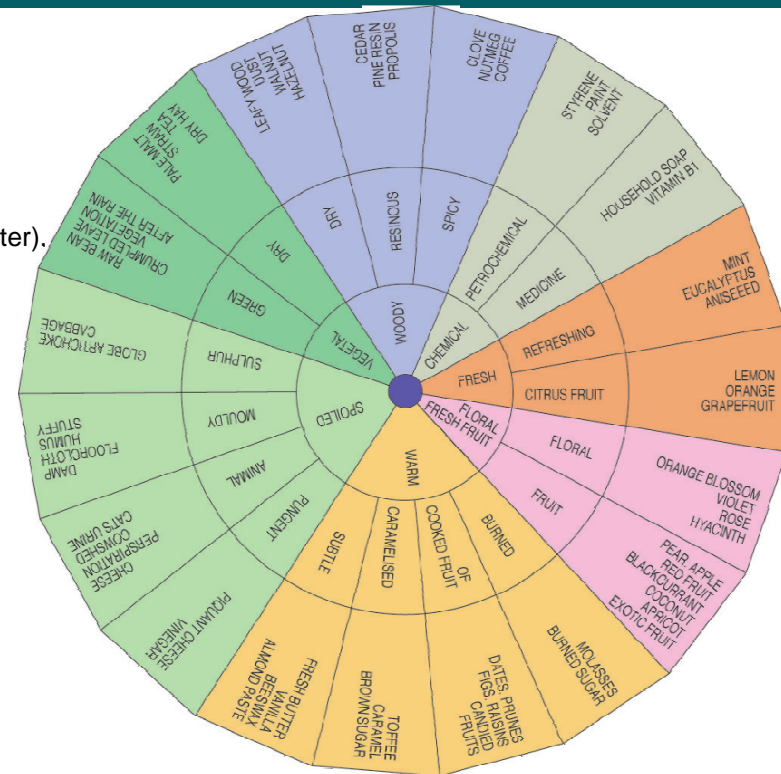
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Discussion for families and sub-families definition

Honey wheel families

IHC wheel 2004

- Floral - fresh fruit
- Warm
- Woody
- Fresh
- Chemical
- Vegetal
- Spoiled

IHC wheel 2013

- Floral
- Fruity
- Warm
- Aromatic
- Chemical
- Vegetal
- Animal

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Blind testing



for families and sub-families definition



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choosing the references



for each sub-families



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choosing the references

RESULTS IN FAMILIES CLASSIFICATION

The numbers in the table represent the percentage of assessors that attributed the reference to the specific family

References were considered suitable for the family if at least 75% of the assessors classified them in one family (in yellow)

Code	Reference	Brand	Floral	Fruity	Warm	Aromatic	Vegetal	Chemical	Animal	Result	Family code
012	strawberry aroma	Etol d.d.	0,0	94,1	0,0	0,0	0,0	5,9	0,0	Fruity	2
016	liquorice	Sentosphère	12,5	0,0	0,0	87,5	0,0	0,0	0,0	Aromatic	4
017	pear	Sentosphère	66,7	33,3	0,0	0,0	0,0	0,0	0,0	NO	
031	oregano	Sentosphère	0,0	0,0	0,0	77,8	22,2	0,0	0,0	Aromatic	4
036	butter	Sentosphère	0,0	12,5	87,5	0,0	0,0	0,0	0,0	Warm	3
040	incense	Sentosphère	0,0	0,0	0,0	33,3	11,1	55,6	0,0	NO	
046	leather	Sentosphère	0,0	0,0	0,0	0,0	0,0	100,0	0,0	Chemical	6
068	hay	Sentosphère	0,0	0,0	0,0	0,0	100,0	0,0	0,0	Vegetal	5
069	celery aroma	Etol d.d.	0,0	0,0	0,0	37,5	25,0	6,3	31,3	NO	

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choosing the references

RESULTS IN SUB-FAMILIES CLASSIFICATION

Family code	Family	Code	Reference	Brand	Fine	Heady
1	Floral	017	Pear (1)	Sentosphère	100,0	0,0
		280	Rose	Sentosphère	25,0	75,0
		321	Orange blossom distillate (2)	Etol d.d.	63,6	36,4
		414	Linden (basswood)	Sentosphère	66,7	33,3
		461	Hyacinth	Sentosphère	12,5	87,5
		576	Honeysuckle	Sentosphère	25,0	75,0
		882	Violet	Sentosphère	60,0	40,0
		911	Lily of the valley	Sentosphère	33,3	66,7
		952	Rose oil	Etol d.d.	16,7	83,3
		991	Orange blossom (3)	Sentosphère	33,3	66,7

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Commercial products were used

smelling games from Sentosphère

<http://www.sentosphere.fr/>

- 1: Parfumaster Les odeurs de la maison de ma grand-mère
- 2: Parfumaster Les odeur du jardin de mon grand-père
- 3: Parfumaster Les odeurs du verger-ptager
- 4: Le loto des odeurs
- 5: Bacchanales
- 6: La route des epices

alimentary aromas from Etol d.d.

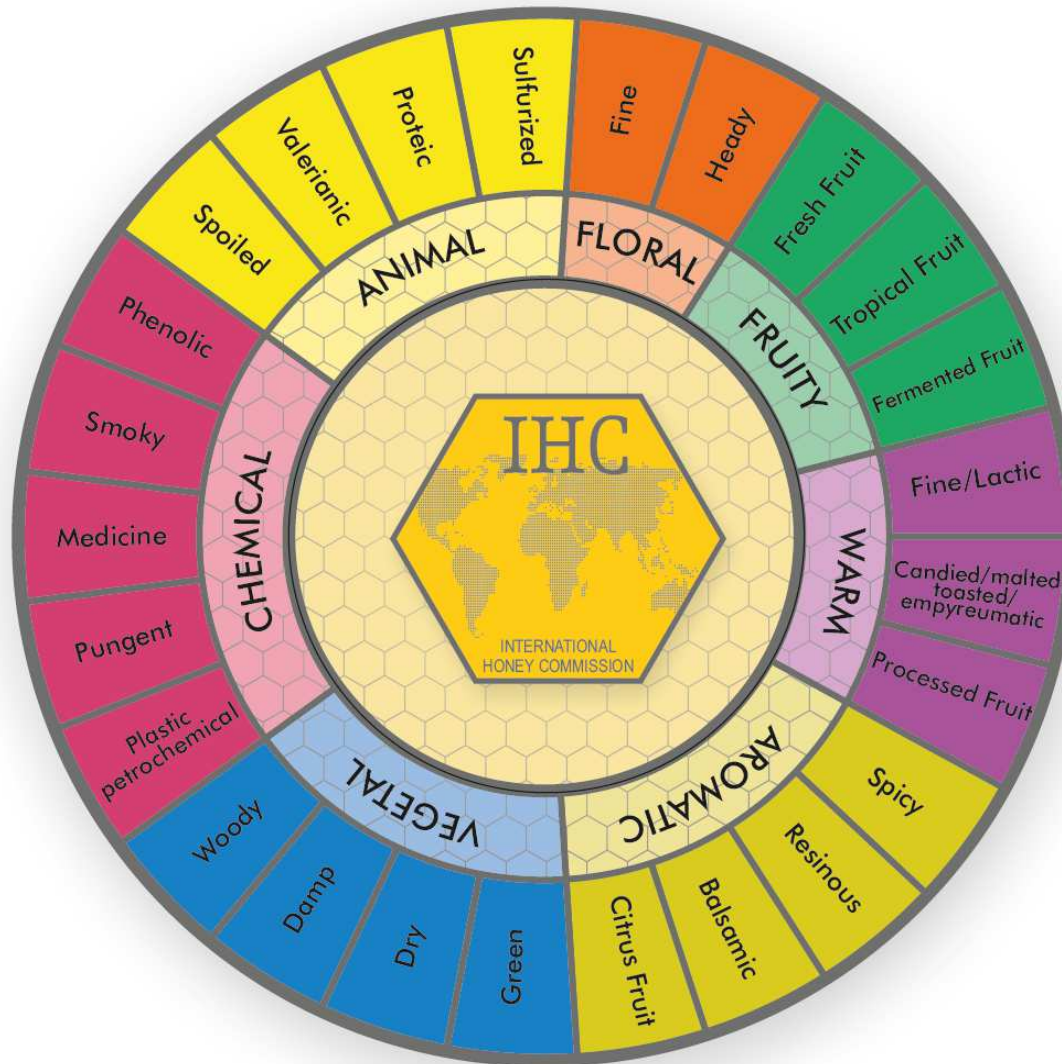
<http://www.etol.si/index.php/sitemap>



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Final wheel



Final proposal

Proposed references are reported in bold (Sentosphère + some natural references or pure substances)

Family code	Family	Sub-family code	Sub family	Sentosphère	Etol d.d.	Aromaster	Le nez du vin	Pure substances	Essential oils and natural extracts	Natural substances	
1	FLORAL	1	Fine	basswood (linden) , pear, violet	orange blossom distillate		linden, violet	phenylacetaldehyde			
		2	Heady	honeysuckle , hyacinth , lily of the valley , orange blossom, rose	rose oil	honeysuckle	rose		orange blossom		
2	FRUITY	1	Fresh Fruit	blackberry , peach, quince , strawberry	strawberry aroma		apple, blackberry, pear, raspberry, strawberry				
		2	Tropical Fruit	banana , melon , raspberry, wild strawberry	raspberry aroma		banana, melon, peach, pineapple				
		3	Fermented Fruit							white wine	
3	WARM	1	Fine/Lactic/Bitter Almond	boiled milk , butter-like , caramel, vanilla	almond aroma	butter, coconut		benzaldehyde, coumarin, vanilline		condensed milk	
		2	Candied/Malted/Toasted/Burnt	coconut, hazelnut , peanut	caramel, hazelnut aroma, walnut aroma	toast	coffee, roasted almond			caramel, malt, peanut, roasted hazelnut	
		3	Processed Fruit	prune						cooked grape must	
4	AROMATIC	1	Spicy	cinnamon , clove , fennel , liquorice, nutmeg , star anise	clove oil, nutmeg oil	nutmeg	cinnamon, clove		fennel, star anise		
		2	Resinous	pine tree			cedar				
		3	Balsamic	eucalyptus , lavender , mint , rosemary , thyme	eucalyptus oil				eucalyptus, incense, lavender, mint, rosemary		
		4	Citrus Fruit	lemon , orange , verbena	grapefruit oil		lemon		orange (sweet orange)		
5	VEGETAL	1	Green	grass , ivy		grass				ivy	
		2	Dry	hay		tomato		hay			
		3	Damp	damp soil , mould , mushroom		mushroom	mouldy/earthy				
		4	Woody								sawdust
6	CHEMICAL	1	Phenolic	leather			leather	phenol	vegetal tar		
		2	Smoky	coffee, smoke					smoke		
		3	Medicine								vitamin B , soap, nail polish remover
		4	Pungent								vinegar
		5	Plastic/Petrochemical						styrene		
7	ANIMAL	1	Sulfurized							dried garlic	
		2	Proteic							cheese , dried fish , dried mushroom , soy sauce	
		3	Valerianic					isovaleric acid			
		4	Rancid	stable					butyric acid		rancid oil
		5	Spoiled						ammonia		

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Final wheel

Translated in:

Bulgarian
Croatian
French
German
Greek
Italian
Slovene
Spanish

Families	Sub-families	Skupina	Podskupina
1 FLORAL	Fine Heady	1 CVETLIČNA	nežna, fina težka
2 FRUITY	Fresh Fruit Tropical Fruit Fermented Fruit	2 SADNA	po svežem sadju po tropskem sadju po fermentiranem sadju, po vinu
3 WARM	Fine/Lactic/Bitter Almond Candied/Malted/Toasted/Burnt Processed Fruit	3 TOPLA	nežna/mlečna/po grenkih mandljih po kandiranem/sladu/pečenem/zažganem po predelanem sadju
4 AROMATIC	Spicy Resinous Balsamic Citrus Fruit	4 AROMATIČNA	po začimbah po smoli balzamična po citrusih
5 VEGETAL	Green Dry Damp Woody	5 RASTLINSKA	po zelenem po suhem po vlažnem, zatohlem po lesu
6 CHEMICAL	Phenolic Smoky Medicine Pungent Plastic/Petrochemical	6 KEMIJSKA	po fenolu po dimu po zdravilih ostra po plastiki/topilih
7 ANIMAL	Sulfurized Proteic Valerianic Rancid Spoiled	7 ANIMALNA	po žveplu po beljakovinah po baldrijanu, valerijanski kislini po žarkem po pokvarjenem, razpadajočem

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Final wheel

From Belgium

Familles	Sous-familles
FLORAL	Léger
	Lourd
FRUITE	Fruit frais
	Fruit tropical
	Fruit fermenté
CHAUD	Doux/Beurré/Pâte d'amandes
	Caramel/Malté/Grillé/Brûlé
	Fruits cuits, Fruits secs
AROMATIQUE	Epicé
	Résiné
	Rafraîchissant
	Zeste
VEGETAL	Vert
	Sec
	Humus
	Boisé
CHIMIQUE	Phénolé
	Fumé
	Médicament
	Aigre
	Plastique/Pétrochimique
ANIMAL	Soufré
	Protéique
	Valérianique
	Rance
	Avancé

From France

Familles	Sous-familles
FLORALE	Légère
	Intense
FRUITEE	Fruit frais
	Fruit tropical
	Fruit fermenté
CHAUDE	légère/Lactique/Amande amère
	Sucre cuit/Maltée/Grillée/Brûlée
	Fruits cuits, Fruits secs
AROMATIQUE	Epicée
	Résinée
	Balsamique
	Agrumes
VEGETAL	Vert
	Sec
	Humide
	Boisé
CHIMIQUE	Phénolée
	Fumée
	Médicinale
	Âcre
	Plastique/Pétrochimique
ANIMALE	Soufrée
	Protéique
	Valérianique
	Rance
	Fauve

CONCLUSION

and work that has to be done....

- ✓ **Most of the work for qualitative standards definition and selection has been done**
- **Verify (validate?) the chosen standards and final definition of the wheel**
- **Define quantitative standards (?)**
- **Define gustatory standards**
- **Define standards for defects recognition and evaluation**
- **Finalize the sensory profile method**
- **Establish rules and forms for honey competitions**

Thank you for your attention



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