AUTONOME PROVINZ BOZEN - SÜDTIROL

Abteilung 29 – Landesagentur für Umwelt
Amt 29.9 – Biologisches Labor

PROVINCIA AUTONOMA DI BOLZANO - ALTO ADIGE

Ripartizione 29 – Agenzia provinciale per l'ambiente
Ufficio 29.9 – Laboratorio biologico

The pollen spectrum of South Tyrolean honeys: How does it change in urban environment?

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Parma, ICA 2018

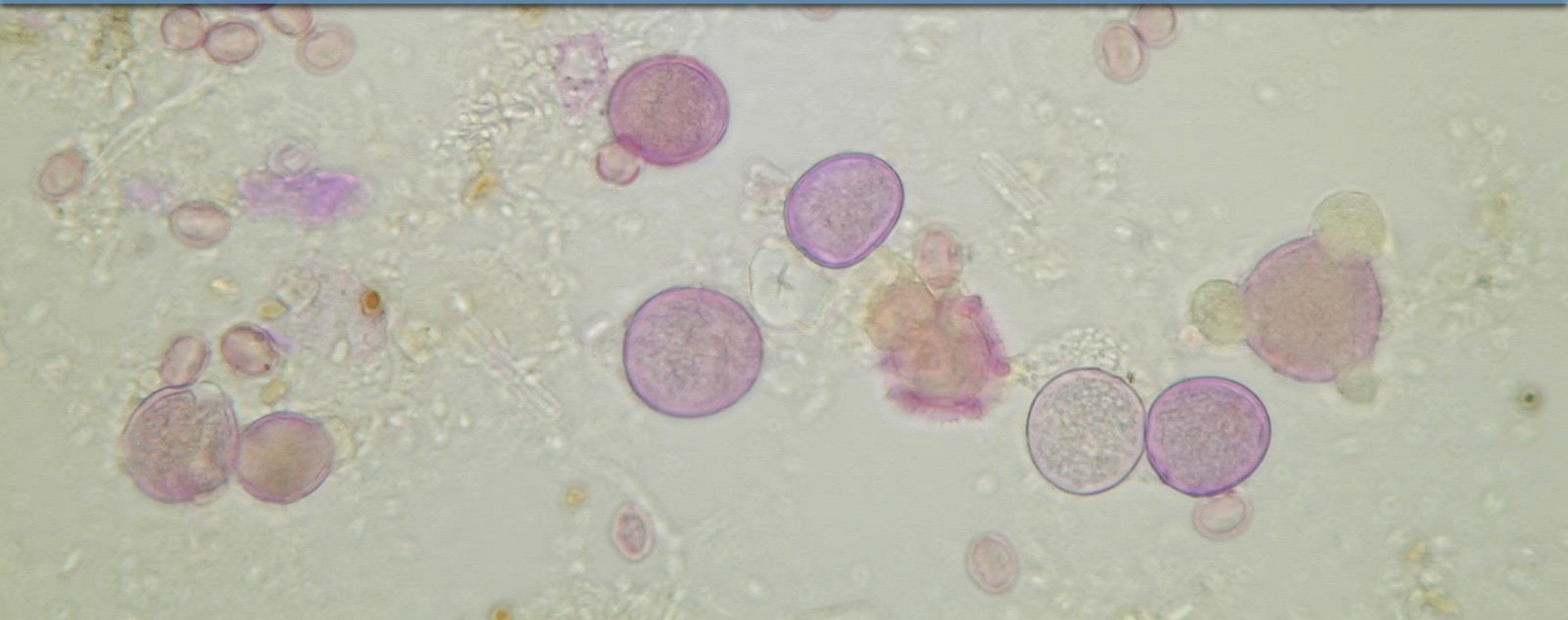
The pollen spectrum – a certificate of honey's origin

geographical origin – botanical origin

The pollen spectrum in South Tyrolean honeys

1998-2017 (705 honey samples)

→ high pollen diversity: 223
→ on average 62 different pollen types/sample
→ basic pollen spectrum: 36 (present in at least 75% of the samples)
→ on average 33 elements of the basic pollen spectrum/sample



The pollen spectrum of two urban honeys

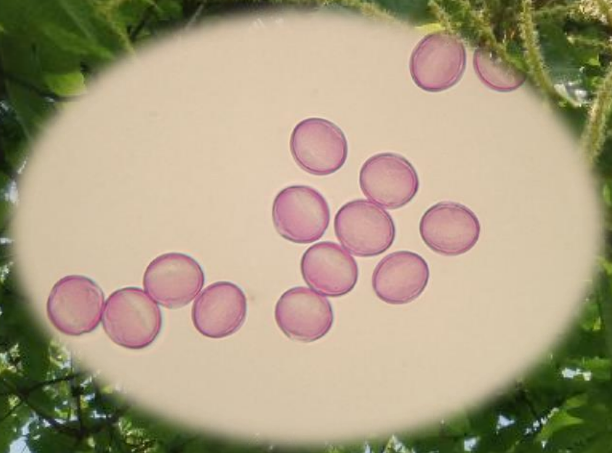
produced in the city center of Bolzano

2015		
Aceraceae	Acer	wIEP
Araliaceae	Hedera	EP1
Asteraceae	A(chillea)-Form	EP1
Asteraceae	H(elianthus)-Form	EP1
Asteraceae	T(araxacum)-Form	EP2
Bignoniaceae	Catalpa	EP1
Boraginaceae	Echium	EP2
Brassicaceae		EP1
Buddlejaceae	Buddleja	EP2
Buxaceae	Buxus	EP1
Caesalpiniaceae	Gleditsia	EP2
Campanulaceae		EP1
Caprifoliaceae	Lonicera	EP1
Caprifoliaceae	Symphoricarpos	EP1
Caprifoliaceae	Viburnum	EP1
Caprifoliaceae	Weigela	EP1
Caryophyllaceae		EP1
Cornaceae	Cornus	EP1
Crassulaceae	Sedum/Sempervivum-G.	EP2
Fabaceae	Melilotus-Gruppe	EP1
Fabaceae	Robinia	EP2
Fabaceae	Sophora japonica?	EP2
Fabaceae	Trifolium repens-Gruppe	wIEP
Fagaceae	Castanea	LP
Hippocastanaceae	Aesculus	wIEP
Lamiaceae	Lavandula	EP1
Lamiaceae	M(ajorana)-Form	EP1
Lauraceae		EP1
Liliaceae s.l.		EP2
Lythraceae	Punica granatum?	EP2
Magnoliaceae	Liriodendron	EP2
Magnoliaceae	Magnolia	EP1
Malvaceae		EP1
Myrtaceae		EP1
Oleaceae	Ligustrum/Syringa	EP2
Palmae	Trachycarpus	wIEP
Rosaceae	Fragaria/Potentilla-Gr.	EP2
Rosaceae	Malus/Pyrus-Gruppe	wIEP
Rosaceae	Prunus-Gruppe	EP2
Rosaceae	Rubus-Gruppe	EP2
Rosaceae	kleine Pollenformen	EP1
Salicaceae	Salix	wIEP
Sapindaceae	Koelreuteria?	EP1
Simaroubaceae	Ailanthus	BP
Tiliaceae	Tilia	EP2
Vitaceae	Parthenocissus	wIEP
Aceraceae	Acer negundo	EP2
Actinidiaceae	Actinidia	EP1
Amaranthaceae		EP1
Asteraceae	Artemisia	EP1
Betulaceae	Betula	EP1
Caprifoliaceae	Sambucus	EP2
Corylaceae	Ostrya	EP2
Cupressaceae		EP1
Cyperaceae		EP1
Fagaceae	Quercus	EP2
Juglandaceae		EP2
Juncaceae		EP1
Oleaceae	Fraxinus excelsior	EP1
Oleaceae	Fraxinus ornus	EP2
Oleaceae	Olea	EP1
Papaveraceae		EP2
Pinaceae		EP1
Plantaginaceae	Plantago	EP2
Platanaceae	Platanus	EP1
Poaceae		EP1
Salicaceae	Populus	EP1
Ulmaceae	Ulmus	EP1
Urticaceae		EP2
Vitaceae	Vitis	EP2

2016		
Aceraceae	Acer	wIEP
Apiaceae	A(nthriscus)/H(eracleum)	EP1
Aquifoliaceae	Ilex	EP1
Araliaceae	Hedera	EP1
Asteraceae	A(chillea)-Form	EP2
Asteraceae	H(elianthus)-Form	EP2
Asteraceae	T(araxacum)-Form	EP2
Bignoniaceae	Catalpa	EP2
Boraginaceae	Anchusa/Pulmonaria-Gr.	EP1
Boraginaceae	Echium	EP2
Boraginaceae	Myosotis	EP2
Brassicaceae		EP1
Buddlejaceae	Buddleja	EP1
Buxaceae	Buxus	EP1
Caesalpiniaceae	Gleditsia	EP2
Caprifoliaceae	Symphoricarpos	EP1
Caprifoliaceae	Viburnum	EP1
Caprifoliaceae	Weigela	EP2
Caryophyllaceae		EP1
Commelinaceae		EP1
Cornaceae	Cornus	EP1
Crassulaceae	Sedum/Sempervivum-Gr.	EP2
Eleagnaceae	Eleagnus	EP1
Euphorbiaceae	Euphorbia	EP1
Fabaceae	Lotus-Gruppe	EP1
Fabaceae	Melilotus-Gruppe	EP1
Fabaceae	Robinia	EP2
Fabaceae	Sophora laponica?	EP1
Fabaceae	Trifolium repens-Gr.	EP2
Fagaceae	Castanea	LP
Hippocastanaceae	Aesculus	wIEP
Lamiaceae	Lavandula	EP1
Lamiaceae	M(ajorana)-Form	EP1
Lauraceae		EP2
Liliaceae s.l.		wIEP
Lythraceae	Lagerstroemia	EP2
Lythraceae	Punica granatum?	EP2
Magnoliaceae	Liriodendron	EP2
Magnoliaceae	Magnolia	EP1
Malvaceae		EP1
Myrtaceae		EP1
Oleaceae	Ligustrum/Syringa	EP2
Palmae	Trachycarpus	EP2
Ranunculaceae	Clematis-Gruppe	EP1
Rhamnaceae		EP1
Rosaceae	Fragaria/Potentilla-Gr.	EP1
Rosaceae	Malus/Pyrus-Gruppe	EP2
Rosaceae	Prunus-Gruppe	EP2
Salicaceae	Salix	wIEP
Simaroubaceae	Ailanthus	wIEP
Sapindaceae	Koelreuteria?	EP1
Tiliaceae	Tilia	EP2
Vitaceae	Parthenocissus	EP2
Aceraceae	Acer negundo	EP2
Actinidiaceae	Actinidia	EP2
Amaranthaceae		EP1
Anacardiaceae	Pistacia	EP1
Asteraceae	Artemisia	EP1
Betulaceae	Alnus	EP1
Betulaceae	Betula	EP2
Caprifoliaceae	Sambucus	EP2
Corylaceae	Ostrya	EP2
Cupressaceae		EP1
Cyperaceae		EP1
Fagaceae	Quercus	EP1
Juglandaceae		EP1
Juncaceae		EP1
Oleaceae	Fraxinus excelsior	EP2
Oleaceae	Fraxinus ornus	EP2
Oleaceae	Olea	EP1
Papaveraceae		EP2
Pinaceae		EP2
Plantaginaceae	Plantago	EP2
Poaceae		EP1
Rosaceae	Filipendula	EP1
Ulmaceae	Ulmus	EP1
Urticaceae		EP2
Vitaceae	Vitis	EP2

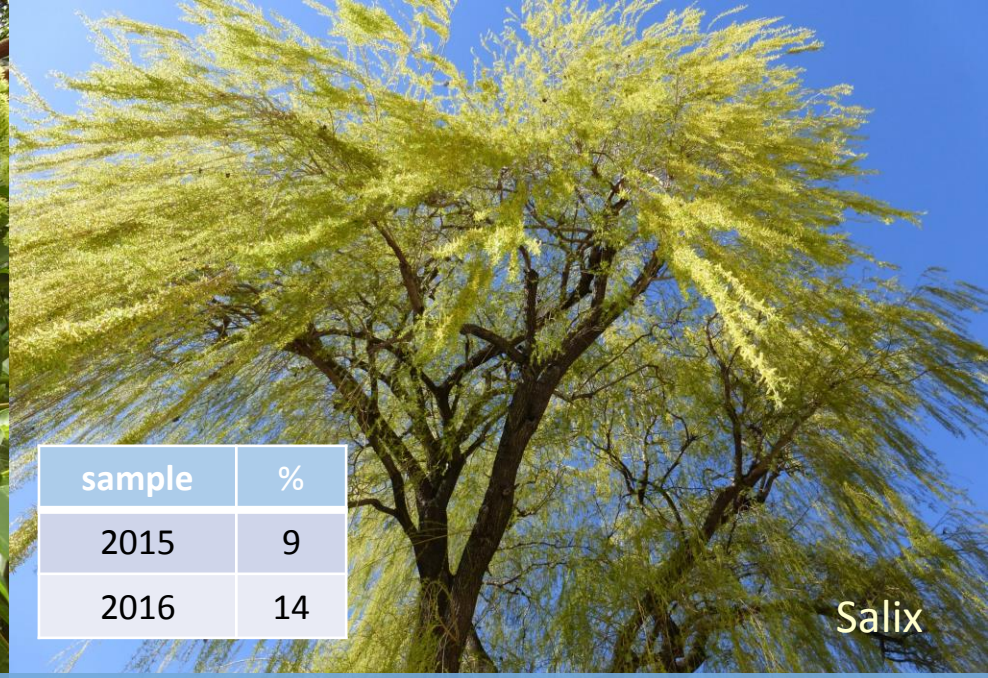
Castanea → «predominant pollen»

sample	%
2015	85,8
2016	82,5



Ailanthus

sample	%
2015	16
2016	14



Salix

sample	%
2015	9
2016	14

tree/shrubs → «important minor pollen» (3-16%)

Acer

sample	%
2015	10
2016	8

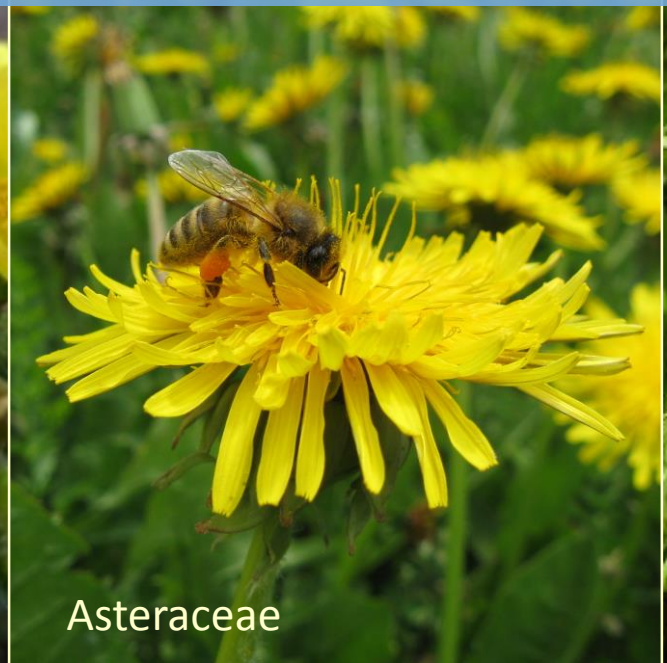
Aesculus

sample	%
2015	8
2016	3

«accompanying pollen flora» - high number of ornamental species (I)

«accompanying pollen flora» - high number of ornamental species (II)

«accompanying pollen flora» - typical local elements



«accompanying pollen flora» - non nectariferous and/or anemophilous species

Conclusions

→ Castanea as «predominant pollen»

→«accompanying pollen spectrum» includes many ornamental species

→ typical local elements: 27 of 36 pollen types (basic pollen spectrum)

→ possible unknown pollen types/shifts in frequencies