CHINESE HONEY 2016

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Presentation of test results

The genesis of this workshop

- In the conversations in Melisso IHC group we realized that Chinese honey is a unknown objet for everyone
- Proposal to organize a workshop on this subject
  - With Chinese experts, but we were not able to find anyone!
  - With more skilled European melissopalynologists (a part of them are here today)
  - Working on some samples
- For the practical work on Chinese samples
  - Lune de Miel laboratory (Patricia Beaune, Laurence Thomazo, Florence Britis, Régine Lurdos) prepared and sent samples to 44 analysts
  - 36 analysts did the analysis and reported back + Celia Beaudouin, a French palynologist with experience in Chinese flora and pollen (other than honey)
  - Francesca Corvucci and Francesca Vittoria Grillenzoni elaborated the results and prepared the material for the workshop (with Nicola Palmieri for the microphotographic plates)
  - I will present the results and drive the microscopical observation

General overview of the results

- 36 analysts form 11 countries
- Most analysts observed fresh pollen, only some used acetolysis
- Big variation in the results:
  - Not all gave entire results (samples and pollen forms)
  - Big variations in pollen forms identified (different names for same pollen forms)
  - Big variations in number of identified pollen types (skill/experience and observation time)
  - Big variations in frequencies

N. of identified pollen types for samples

Sample	n.	Min	Max
1	35	7	53
2	33	10	68
3	32	4	48
4	36	8	72

Pollen types identification

- Very difficult to compare the results because of the diversity of the results
- How to allow to all ring trial participants to have a feed back of their work?
- Calculating some statistics index on some selected pollen types for each sample, like in other ring trials
- Giving them back all the data: ANNEX 1 – Nomenclature

	A	B	C	D	E	F
1	**Assigned pollen type**	**Family www.theplantlist.org**	**% T**	**Palynologist**	**Data**	**Sample**
2	**Aborted**	Aborted	4,8	08	Aborted	2
3	**Aborted**	Aborted	2,1	27	Aborted	2
4	**Aborted**	Aborted	1,8	19	Aborted	2
5	**Aborted**	Aborted	9,7	08	Aborted	3
6	**Aborted**	Aborted	4,0	27	Aborted	3
7	**Aborted**	Aborted	2,2	19	Aborted	3
8	**Aborted**	Aborted	1,4	08	Aborted	4
9	**Aborted**	Aborted	0,4	27	Aborted	4
10	**Acacia**	Leguminosae	0,0	34	Acacia-type	4
11	**Acacia**	Leguminosae	0,2	35	Acacia	4
12	**Acanthaceae**	Acanthaceae	0,5	28	Acanthaceae	1
13	**Acanthaceae**	Acanthaceae	0,0	05	Acanthaceae type 55µm	3

ANNEX 1

In «Data» column the pollen names as indicated from the analists (without any correction) were put

E
Data
Aborted
Aborted
Aborted
Aborted
Aborted
Aborted
Aborted
Aborted
Acacia-type
Acacia
Acanthaceae
Acanthaceae type 55µm
Acer
Acer
Acer

In «Assigned pollen type» we used the same name for all «Data» referable to the same pollen type; in «Family» it is indicated the correspondent botanic family using the nomenclature of www.theplantlist.org.

A	B
Assigned pollen type	**Family www.theplantlist.org**
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Aborted	Aborted
Acacia	Leguminosae
Acacia	Leguminosae
Acanthaceae	Acanthaceae
Acanthaceae	Acanthaceae
Acer	Sapindaceae
Acer	Sapindaceae
Acer	Sapindaceae

Other columns

Sample number

Palinologyst code

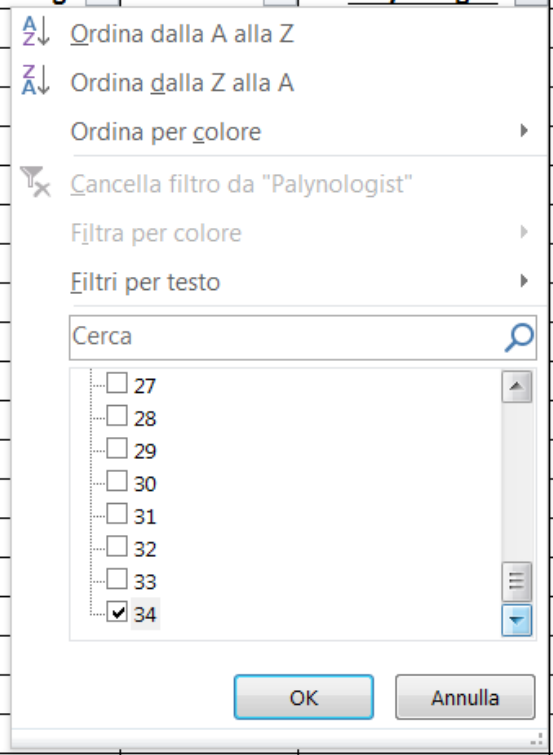
Frequency on total pollen count for this analyst

	A	B	C	D	E	F
1	**Assigned pollen type**	**Family www.theplantlist.org**	**% T**	**Palynologist**	**Data**	**Sample**
2	**Aborted**	Aborted	4,8	08	Aborted	2
3	**Aborted**	Aborted	2,1	27	Aborted	2
4	**Aborted**	Aborted	1,8	19	Aborted	2
5	**Aborted**	Aborted	9,7	08	Aborted	3
6	**Aborted**	Aborted	4,0	27	Aborted	3
7	**Aborted**	Aborted	2,2	19	Aborted	3
8	**Aborted**	Aborted	1,4	08	Aborted	4
9	**Aborted**	Aborted	0,4	27	Aborted	4
10	**Acacia**	Leguminosae	0,0	34	Acacia-type	4
11	**Acacia**	Leguminosae	0,2	35	Acacia	4
12	**Acanthaceae**	Acanthaceae	0,5	28	Acanthaceae	1
13	**Acanthaceae**	Acanthaceae	0,0	05	Acanthaceae type 55µm	3

With filter system you can choose the part that you want to check, for instance, your code in «Palynologist» and 1 in «Sample» in order to see your results on sample 1

How to use ANNEX 1

	A	B	C	D	E	F	G
1	**Assigned pollen type**	**Family www.theplantlist.org**	**% T**	**Palynologist**	**Data**	**Sample**	
2	**Aborted**	Aborted			Aborted	2	
3	**Aborted**	Aborted			Aborted	2	
4	**Aborted**	Aborted			Aborted	2	
5	**Aborted**	Aborted			Aborted	3	
6	**Aborted**	Aborted			Aborted	3	
7	**Aborted**	Aborted			Aborted	3	
8	**Aborted**	Aborted			Aborted	4	
9	**Aborted**	Aborted			Aborted	4	
10	**Acacia**	Leguminosae			Acacia-type	4	
11	**Acacia**	Leguminosae			Acacia	4	
12	**Acanthaceae**	Acanthaceae			Acanthaceae	1	
13	**Acanthaceae**	Acanthaceae			Acanthaceae type 55µm	3	
14	**Acer**	Sapindaceae			Acer	1	
15	**Acer**	Sapindaceae			Acer	1	
16	**Acer**	Sapindaceae			Acer	2	
17	**Acer**	Sapindaceae			Acer	2	
18	**Acer**	Sapindaceae			Acer	2	
19	**Acer**	Sapindaceae			Acer	3	
20	**Acer**	Sapindaceae			Acer	3	
21	**Acer**	Sapindaceae	2,7	29	Acer	3	

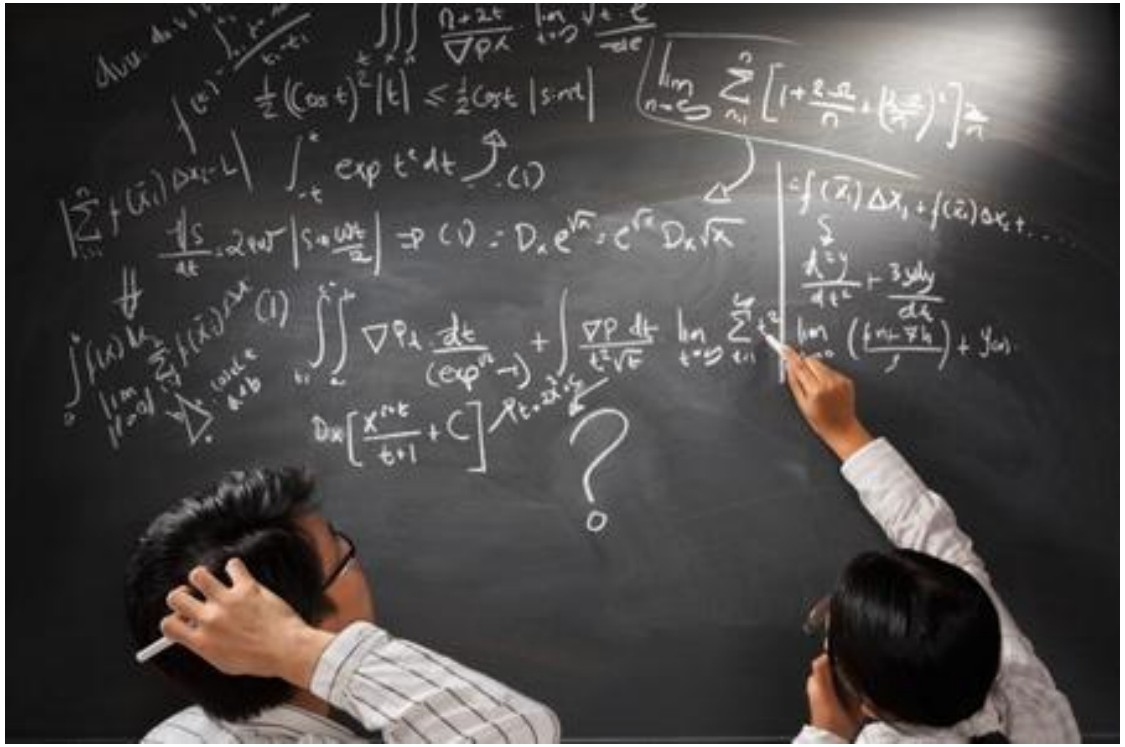


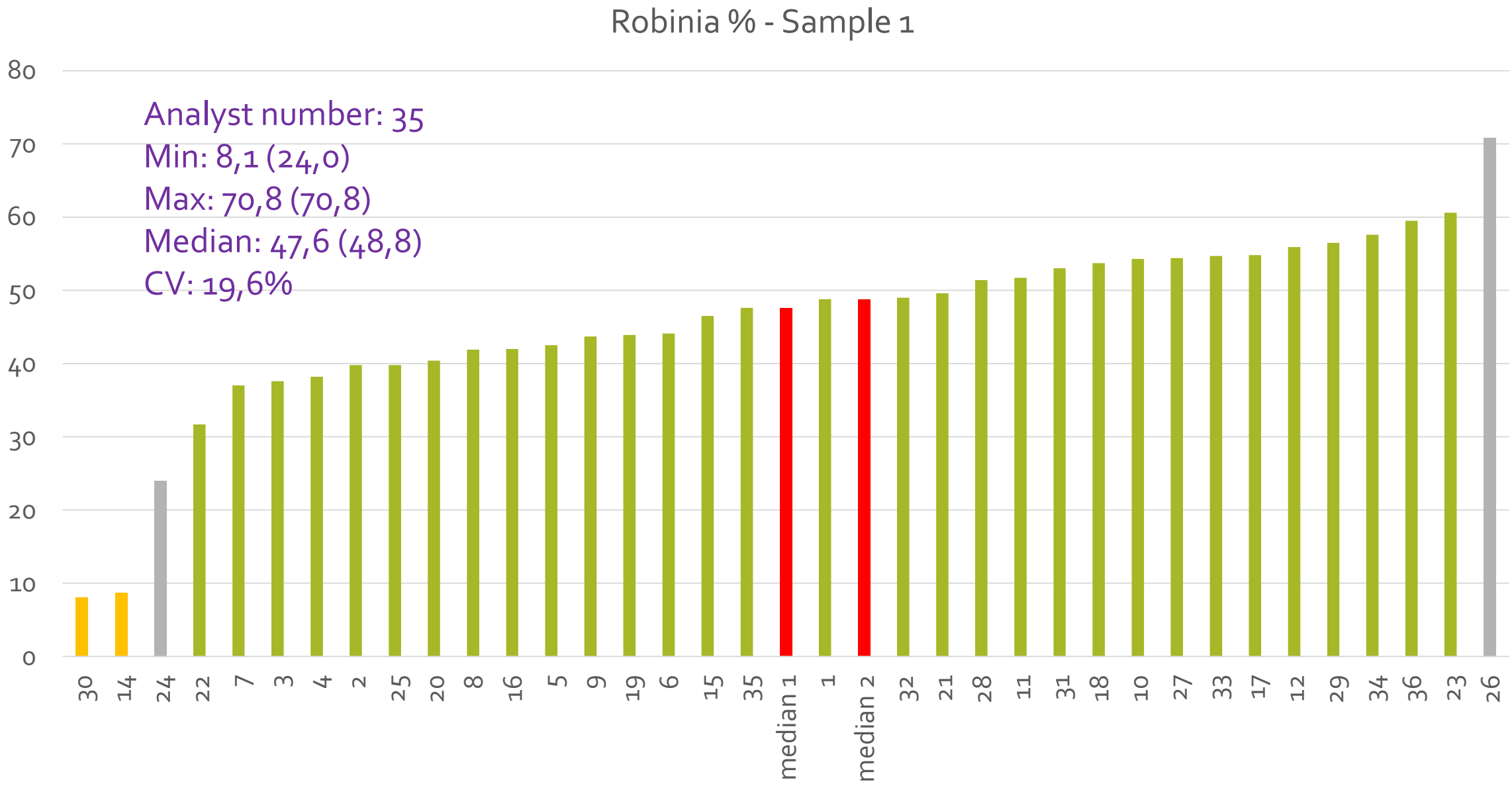
Selection of pollen types for statistical analysis

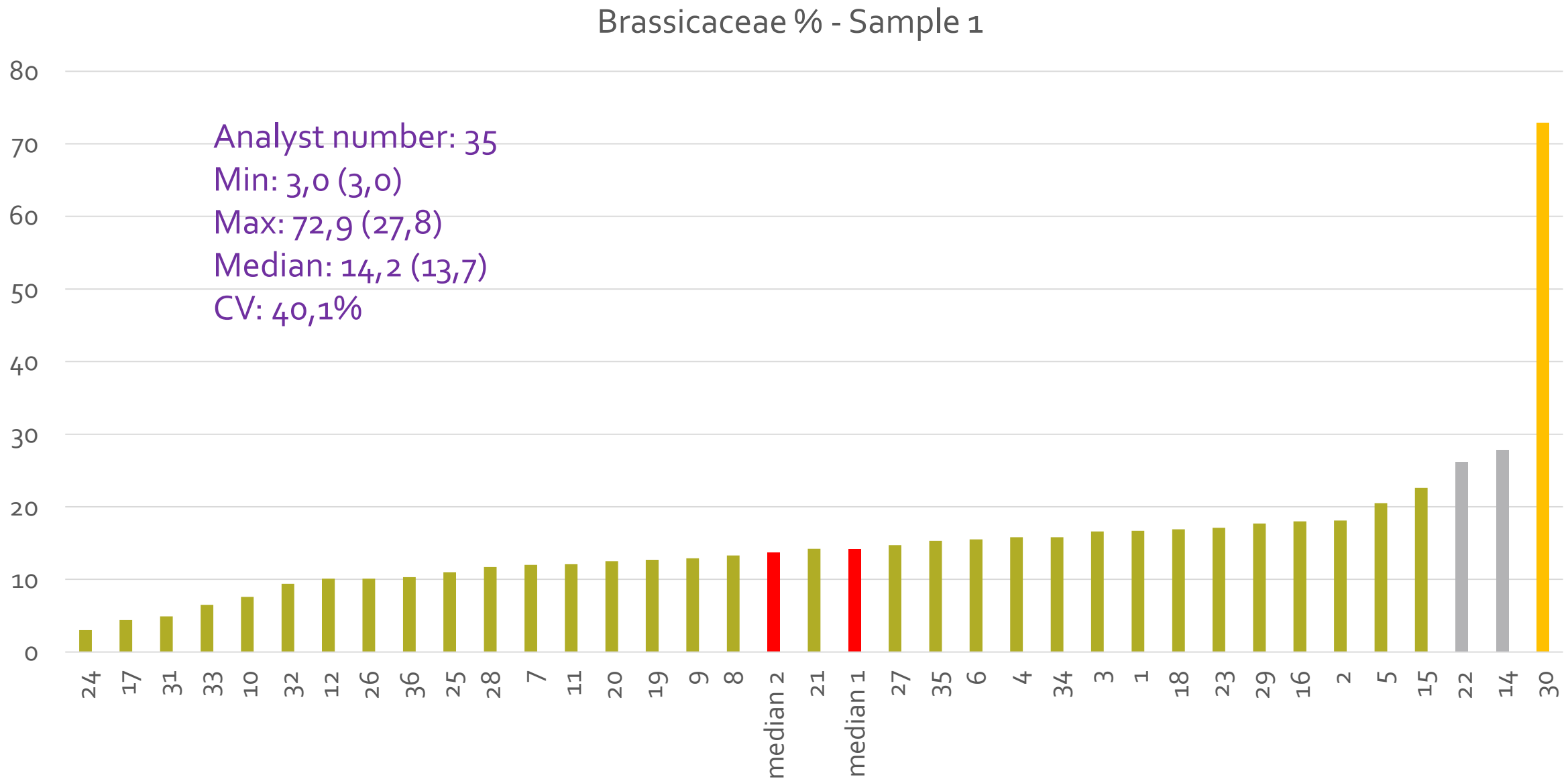
Sample	High (Me>45%)	Medium (5%<Me<45%)		Low (Me<5)	
1	Robinia (Me=47.6)	Brassicaceae (Me=14.2)			
2	Cannabaceae (Me=45.5)	Vitex (Me=19.6)	Rhamnaceae (Me=5.7)	Caryophyllaceae (Me=1.6)	
3	Vitex (Me=67.3)	Flueggea (Me=11.4)		Brassicaceae (Me=2.4)	
4	Brassicaceae (Me=78.0)			Astragalus sinicus (Me=3.4)	Apiaceae (Me=2.6)

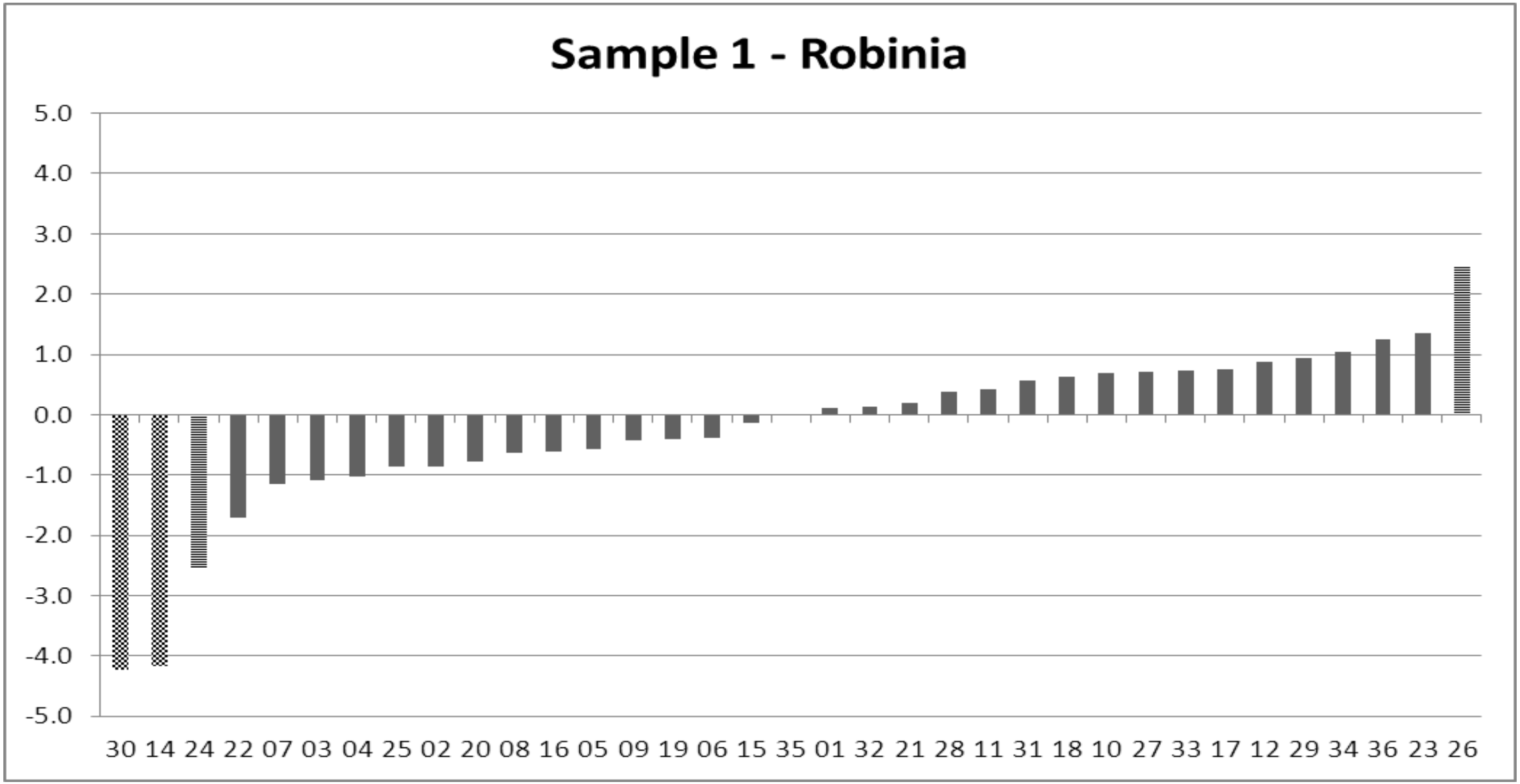
Statistical tests applied

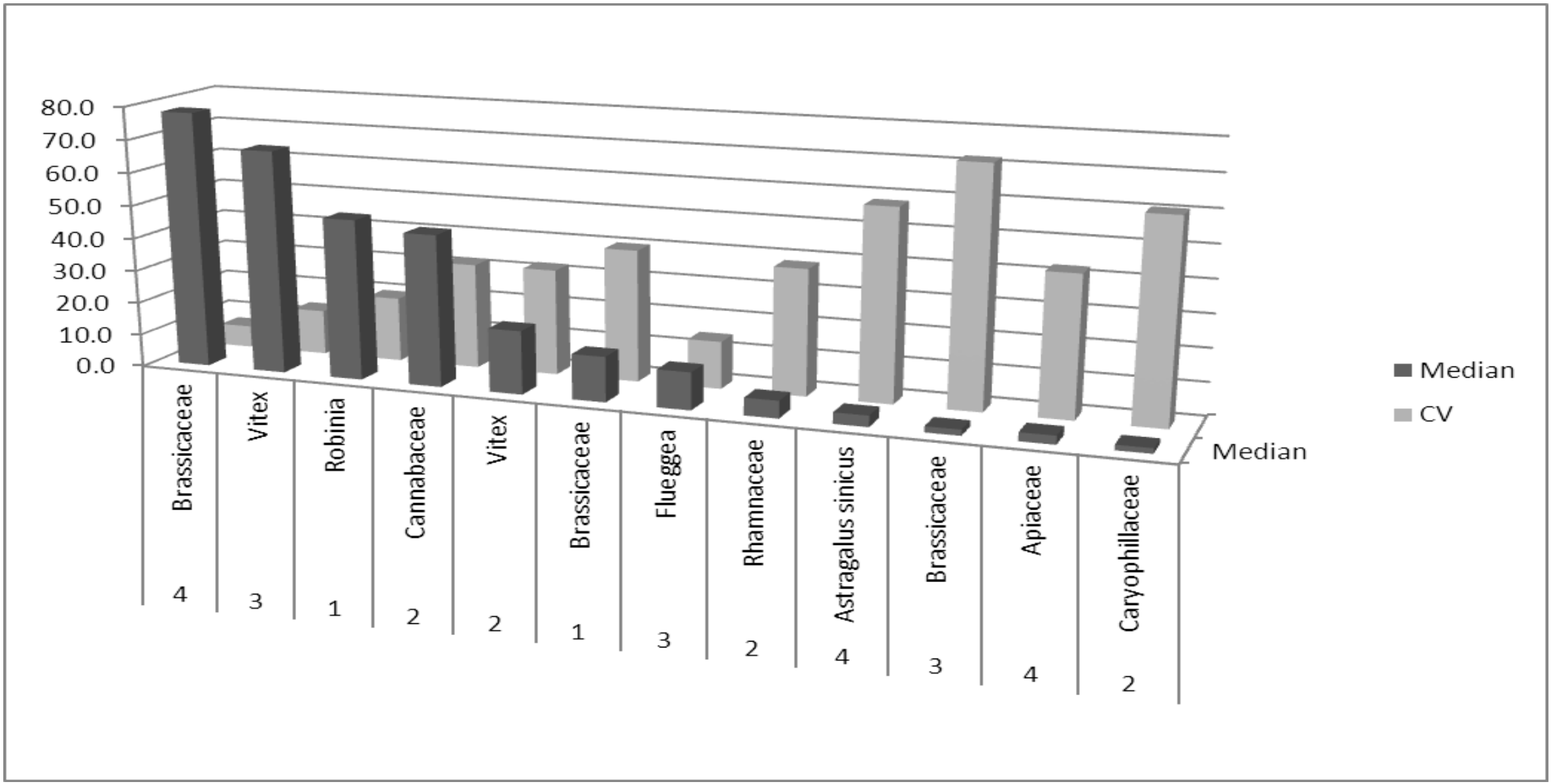
- Normality test checked by Kolmorgov-Smirnov test
- Identified outliers with Grubbs and Hampel tests
- Calculated some statistical index, with and without outlier
- Calculated z-scores

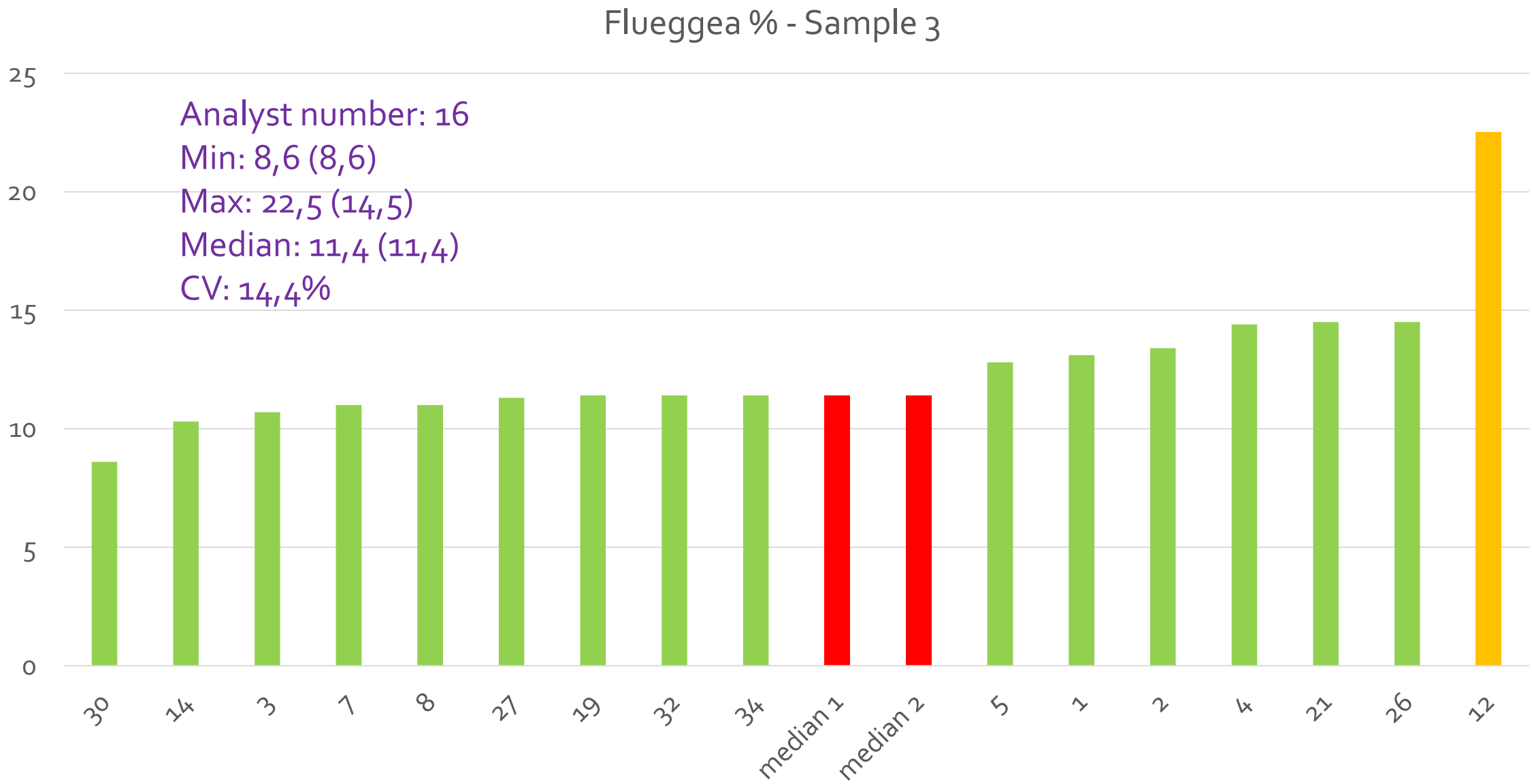


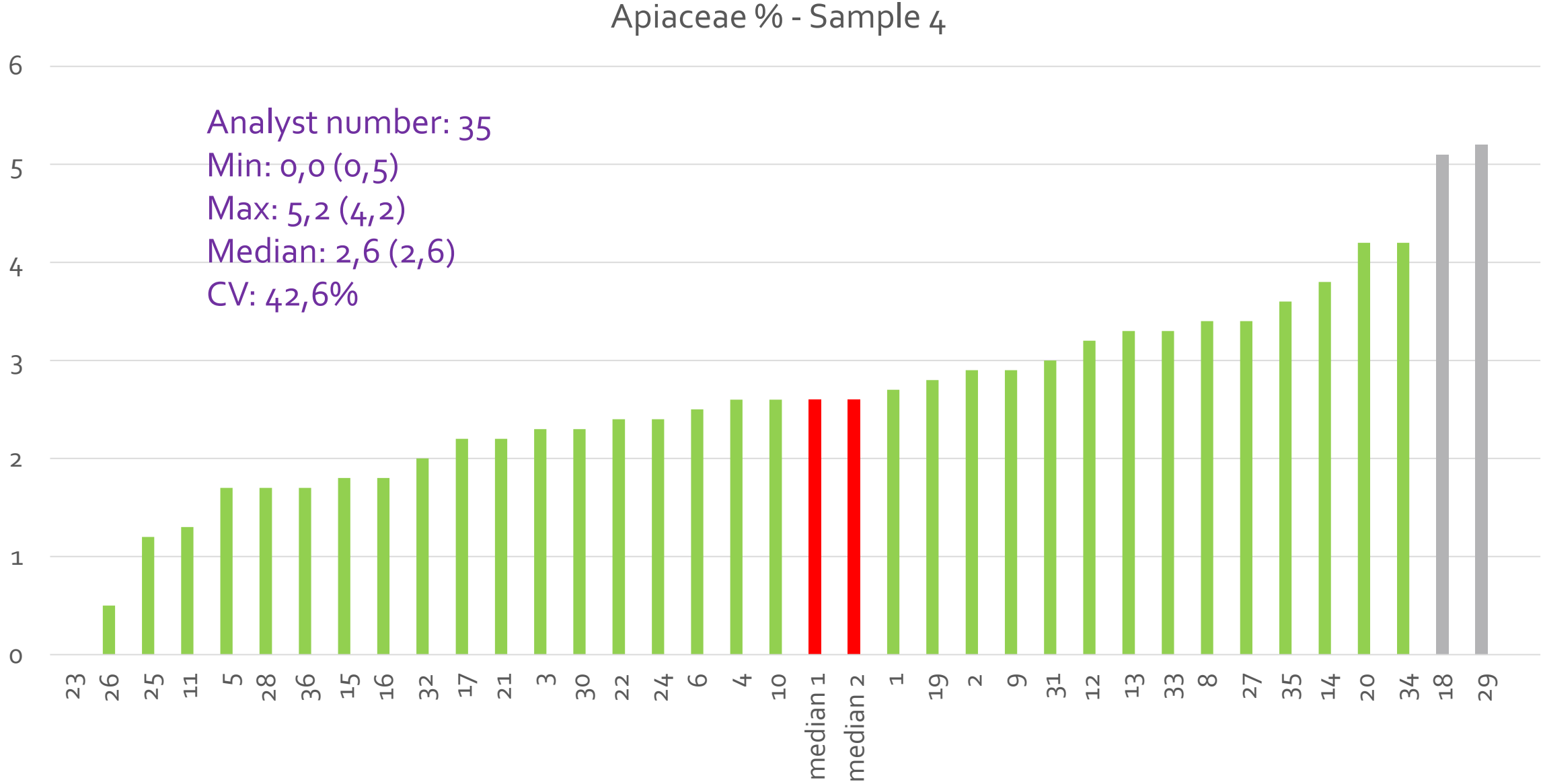

Robinia % - Sample 1
Analyst number: 35
Min: 8,1 (24,0)
Max: 70,8 (70,8)
Median: 47,6 (48,8)
CV: 19,6%
80
70
60
50
40
30
20
10
0
30
14
24
22
7
3
4
2
25
20
8
16
5
9
19
6
15
35
median 1
1
median 2
32
21
28
11
31
18
10
27
33
17
12
29
34
36
23
26


Brassicaceae % - Sample 1
Analyst number: 35
Min: 3,0 (3,0)
Max: 72,9 (27,8)
Median: 14,2 (13,7)
CV: 40,1%
80
70
60
50
40
30
20
10
0
24
17
31
33
10
32
12
26
36
25
28
7
11
20
19
9
8
median 2
21
median 1
27
35
6
4
34
3
1
18
23
29
16
2
5
15
22
14
30


Sample 1 - Robinia
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
30 14 24 22 07 03 04 25 02 20 08 16 05 09 19 06 15 35 01 32 21 28 11 31 18 10 27 33 17 12 29 34 36 23 26

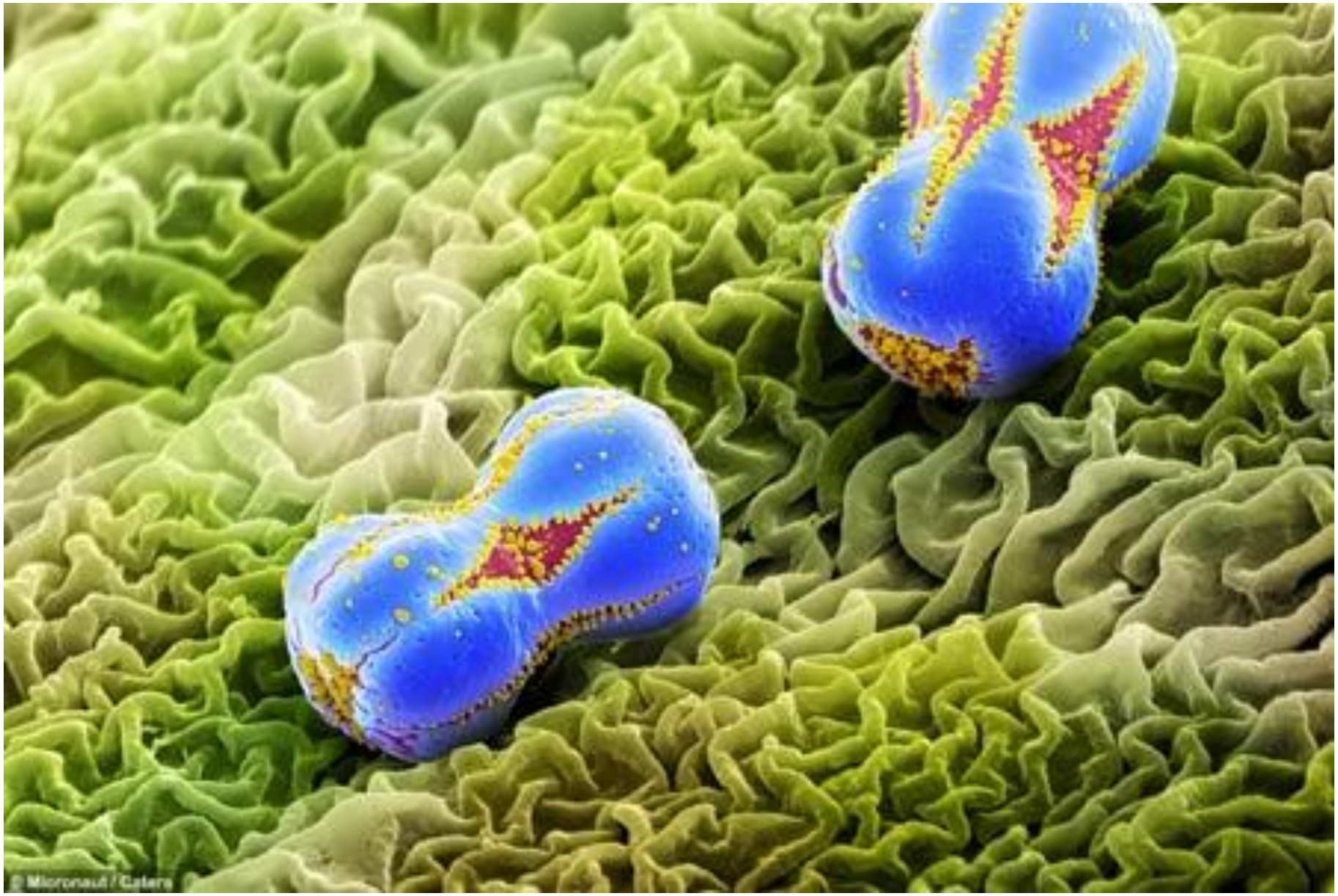

80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Brassicaceae
Vitex
Robinia
Cannabaceae
Vitex
Brassicaceae
Flueggea
Rhamnaceae
Astragalus sinicus
Brassicaceae
Apiaceae
Caryophillaceae
4
3
1
2
2
1
3
2
4
3
4
2
Median
CV
Median


Flueggea % - Sample 3
Analyst number: 16
Min: 8,6 (8,6)
Max: 22,5 (14,5)
Median: 11,4 (11,4)
CV: 14,4%
25
20
15
10
5
0
30
14
3
7
8
27
19
32
34
median 1
median 2
5
1
2
4
21
26
12


Apiaceae % - Sample 4
Analyst number: 35
Min: 0,0 (0,5)
Max: 5,2 (4,2)
Median: 2,6 (2,6)
CV: 42,6%
6
5
4
3
2
1
0
23
26
25
11
5
28
36
15
16
32
17
21
3
30
22
24
6
4
10
median 1
median 2
1
19
2
9
31
12
13
33
8
27
35
14
20
34
18
29

Confrontation with other ring trials

% pollen	CV% Chinese ring trial	CV% Von der Ohe 2004	CV% IHC ring trial 2014 and 2015
>70%	6,6%	3,6%	-
40-50%	19,6-32,1%	-	13%
10-15%	14,4-40,1%	26,3%	31-34%
1-5%	38,3-72,1	37-53%	90%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