Preliminary results on chemical composition of two conventional and one genetically engineered plum cultivars

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ROMANIA

Conventional plums
vs
Genetically engineered plums

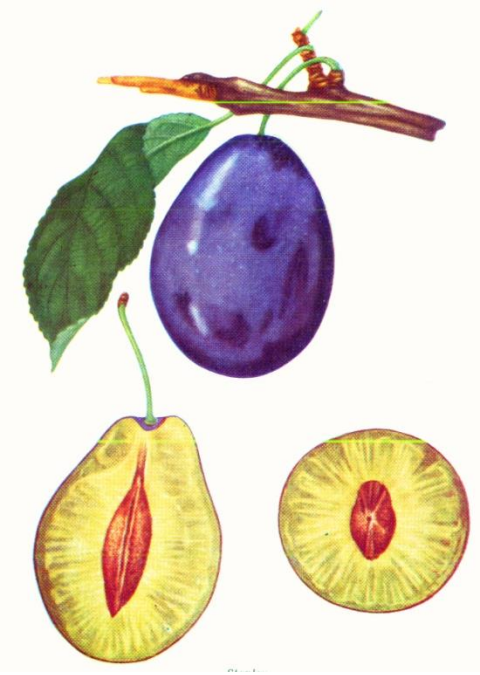

CAIET DE UTILIZARE
BALANTA ANALITICA
KERN ABT 120-50M
-39.9838
1
2
3

STANLEY

❖Fruits are large or very large (35-40 g), inverse ovoid shape, irregular, dark blue skin and golden yellow flesh on maturity

❖Chemical composition (as determined in the lab) in the next slides

❖Resistant to transport and storage, consumed especially as fresh fruits

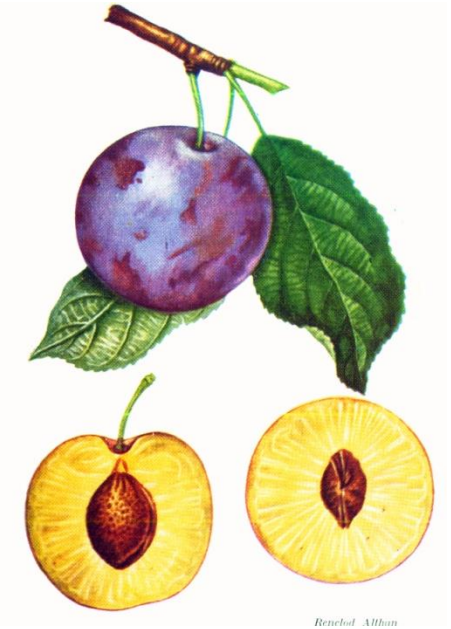


REINE CLAUDE D'ALTHAN

❖Fruits are very large (45-58 g), round shape, slightly applatized on edges, different colors on maturity, our variety violet-red the skin and golden yellow flesh

❖ Chemical composition characterized by high content of sugars

❖ One of the finest varieties for consuming as fresh fruits, resistant to transport and handling



HONEYSWEET

❖Genetically engineered plum tree, resistant to *Plum Pox Virus*

❖ Two new genes are introduced in the DNA of plums, safe for the environment (European Food Safety Authority, US government authorities)

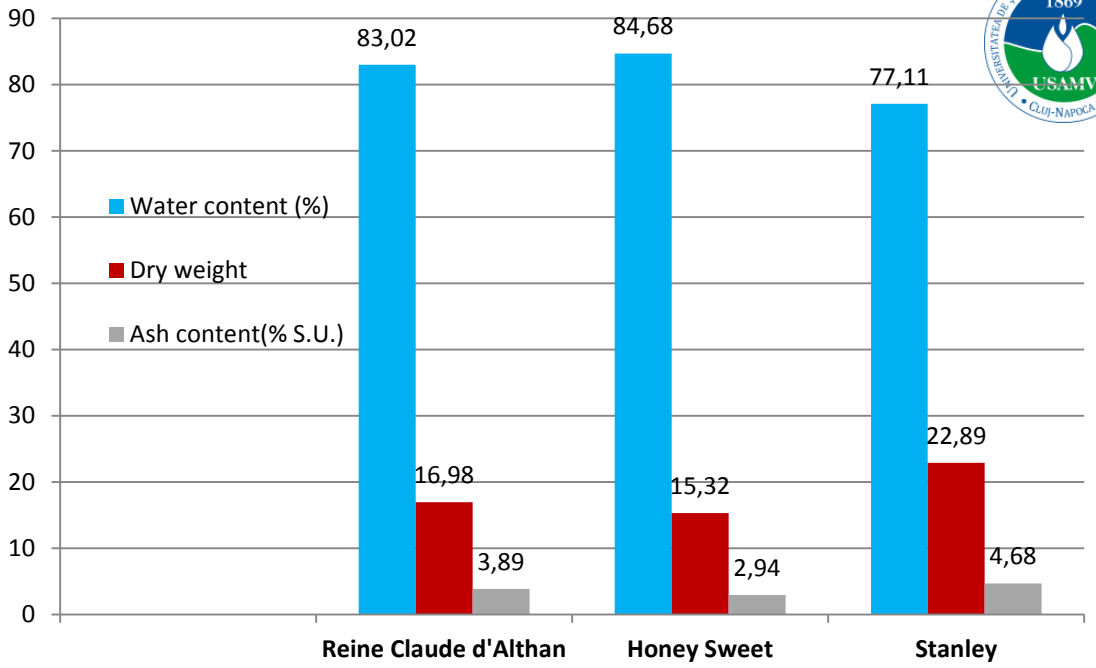
❖ Large fruits (60 g), sweet and flavoured

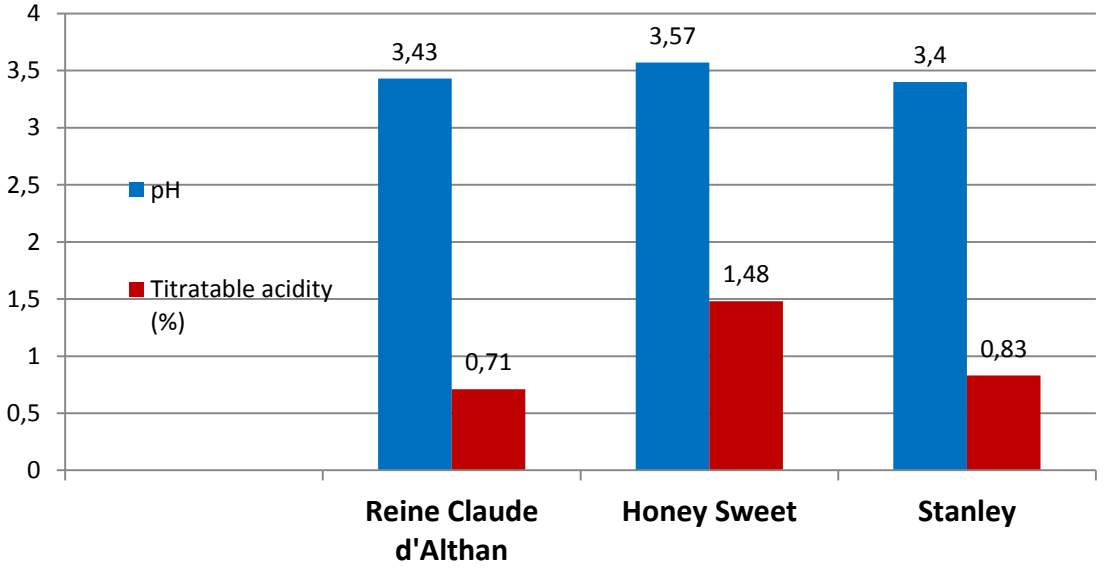
ANALYZED PLUM FRUITS

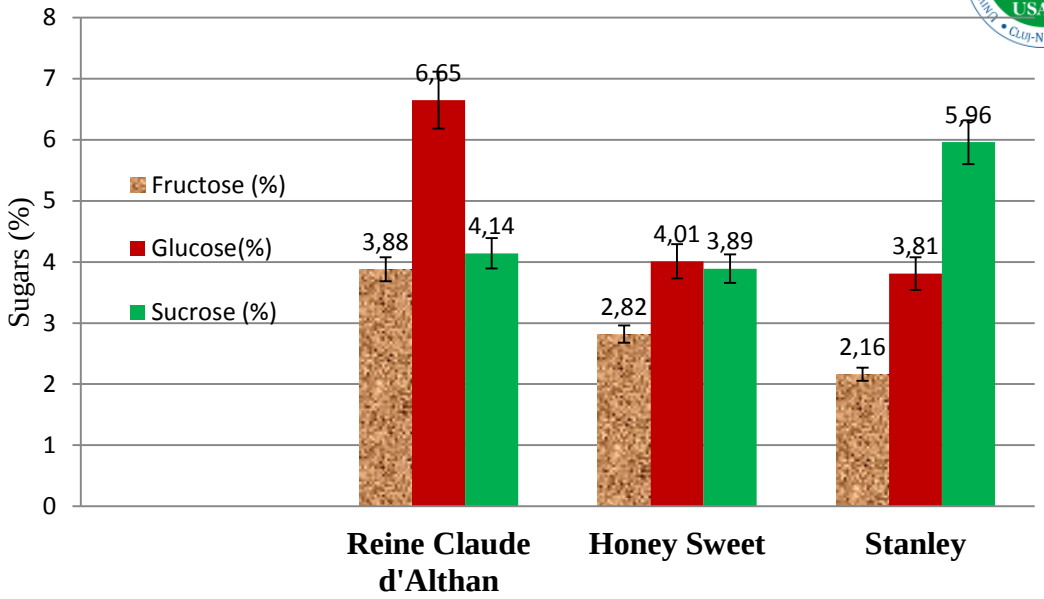
Honey Sweet

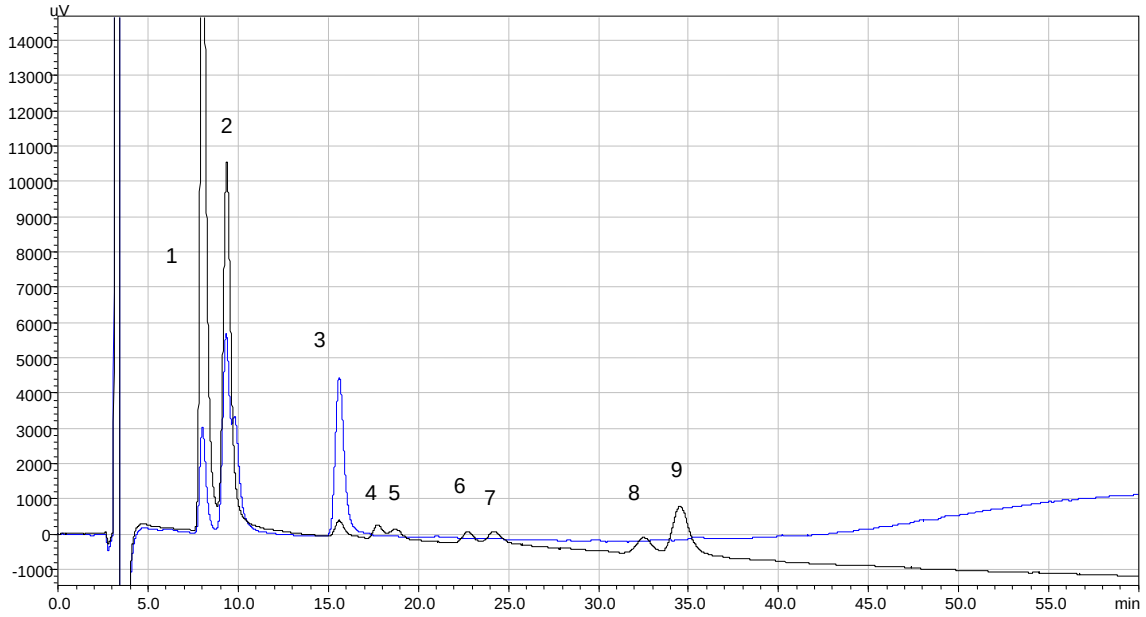
Reine Claude d'Althan

Stanley

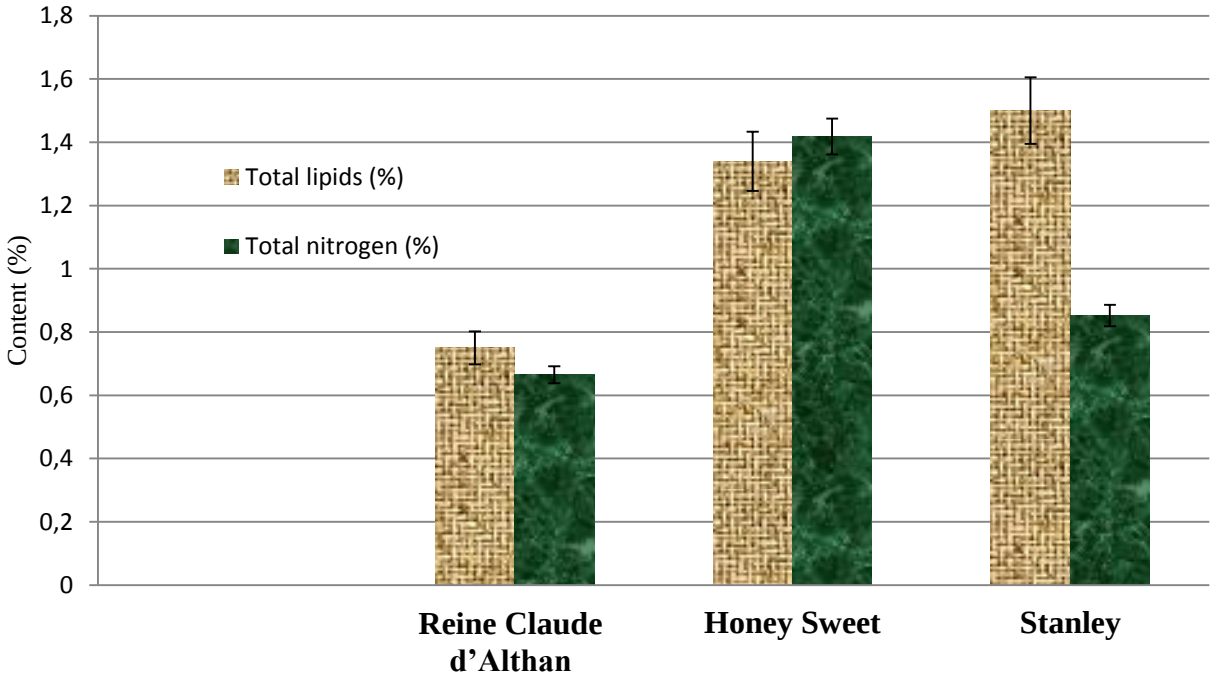

90
80
70
60
50
40
30
20
10
0
Water content (%)
Dry weight
Ash content(% S.U.)
83,02
16,98
3,89
84,68
15,32
2,94
77,11
22,89
4,68
Reine Claude d'Althan
Honey Sweet
Stanley

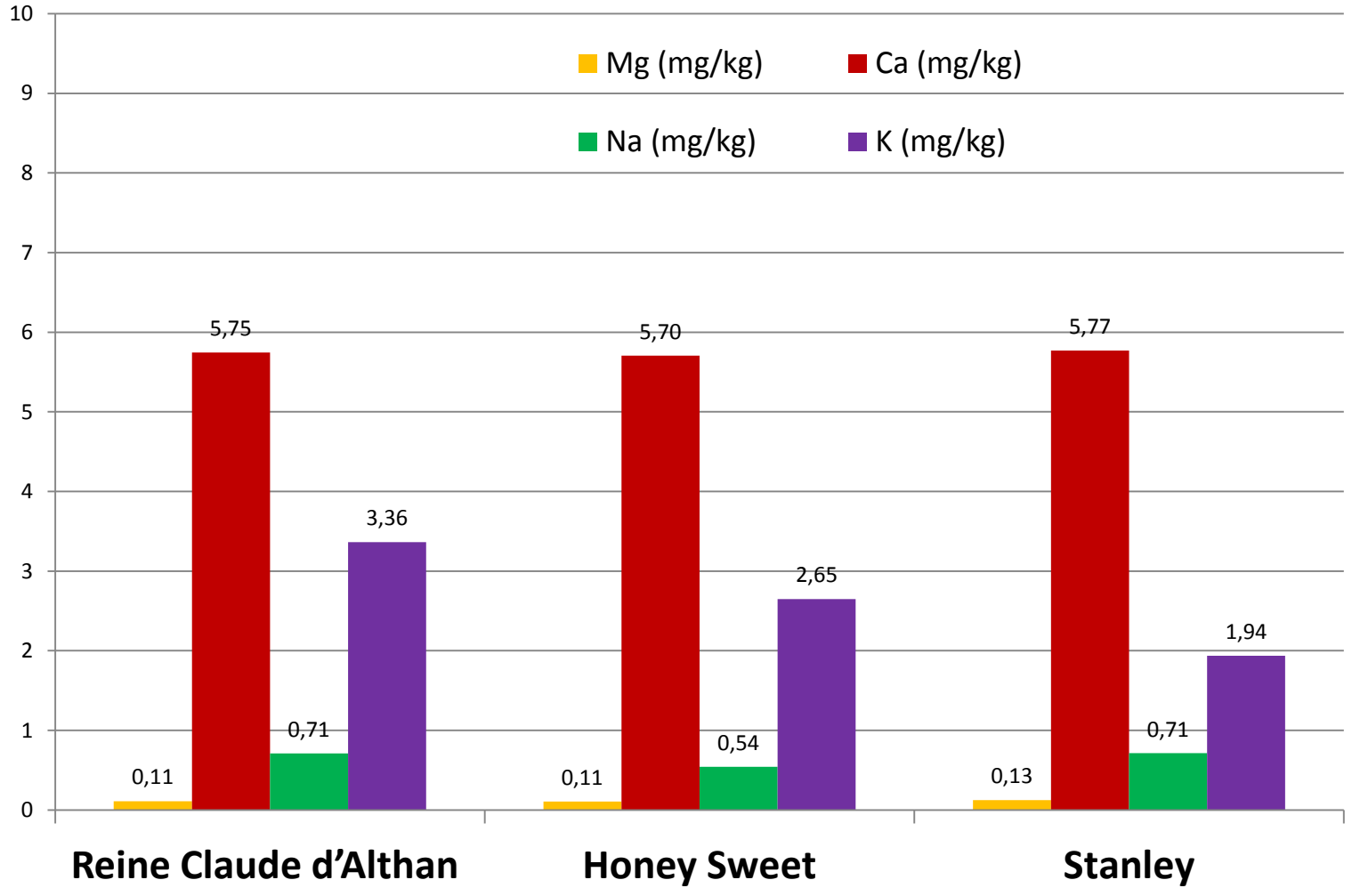

4
3,5
3
2,5
2
1,5
1
0,5
0
pH
Titratable acidity (%)
3,43
0,71
3,57
1,48
3,4
0,83
Reine Claude d'Althan
Honey Sweet
Stanley


Sugars (%)
Fructose (%)
Glucose(%)
Sucrose (%)
3,88
6,65
4,14
2,82
4,01
3,89
2,16
3,81
5,96
Reine Claude d'Althan
Honey Sweet
Stanley


uV
1
2
3
4 5
6
7
8
9
min


KERN PEJ
242.250 g


1,8
1,6
1,4
1,2
1
0,8
0,6
0,4
0,2
0
Content (%)
Total lipids (%)
Total nitrogen (%)
Reine Claude d'Althan
Honey Sweet
Stanley


10
9
8
7
6
5
4
3
2
1
0
Mg (mg/kg)
Ca (mg/kg)
Na (mg/kg)
K (mg/kg)
5,75
5,70
5,77
3,36
2,65
1,94
0,11
0,71
0,11
0,54
0,13
0,71
Reine Claude d'Althan
Honey Sweet
Stanley

Conclusions:

❖Depending on the variety of fruits, highest content of water was registered in Honey Sweet (the largest fruits), followed by Reine Claude d'Althan and Stanley.

❖The highest content of soluble solids presented Reine Claude d'Althan, followed by Stanley and Honey Sweet

❖ The highest amount of sugars was registered in Reine Claude d'Althan variety, evidentiating the high fructose content. Honey Sweet variety presented an equilibrate sugar content, between the three main sugars determined

❖High lipid content was registered in Stanley variety, and low amounts for Reine Claude d'Althan. Protein content was low in the two mentioned varieties. Honey Sweet variety exhibit again an equilibrate protein and lipid content, higher than the other analyzed varieties

❖ High amounts of calcium were determined in all fruits, followed by potassium , sodium and magnesium.

Perspectives:

- Further studies will be made on comparative organic acids determination
- Polyphenolic spectrum
- Antioxidant activity
- Other bioactive properties