

ARISTOIL

“Reinforcement of Mediterranean olive oil sector competitiveness through development and application of innovative production and quality control methodologies related to olive oil health protecting properties”

PRIORITY AXIS 1: Promoting Mediterranean innovation capacities to develop smart and sustainable growth

OBJECTIVE: 1.1 To increase transnational activity of innovative clusters and networks of key sectors of the MED area

Project website: <http://aristoil.interreg-med.eu/>

DELIVERABLE Number: 3.2.1

Title of DELIVERABLE: 3.2.1 Interactive map of olive mills and olive varieties

ACTIVITY n. 3.2 Investigation of production parameters influencing the quality of olive oil
WP n. 3: STUDYING

PARTNER IN CHARGE: National and Kapodistrian University of Athens, Department of Pharmacognosy and Natural products Chemistry (UoA)

PARTNERS INVOLVED: 1. National and Kapodistrian University of Athens, Department of Pharmacognosy and Natural products Chemistry (UoA)
2. University of Cordoba, Department of Analytical Chemistry (UCO)
3. EuroMediterranean Center for the Sustainable Development (SVI.MED.)
4. Free Municipal Consortium of Ragusa (Ragusa Consortium)
5. ARISTOLEO (ARI)

Status:

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Date: 31 March 2018

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Project co-financed by the European
Regional Development Fund

SPAIN..... 34

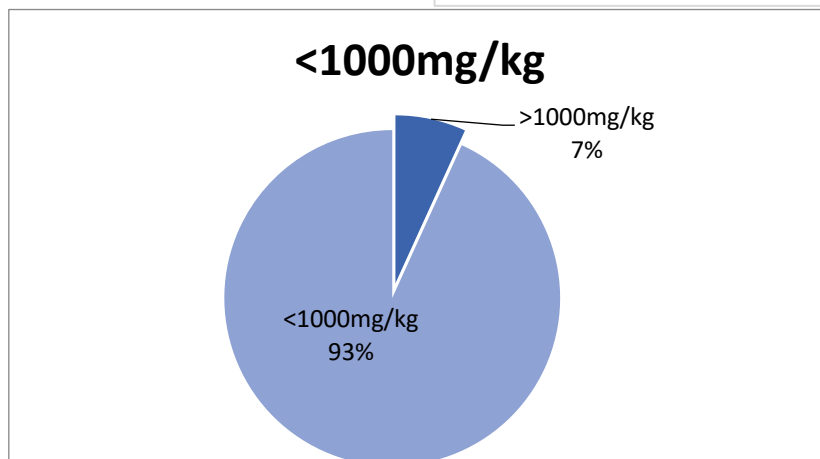
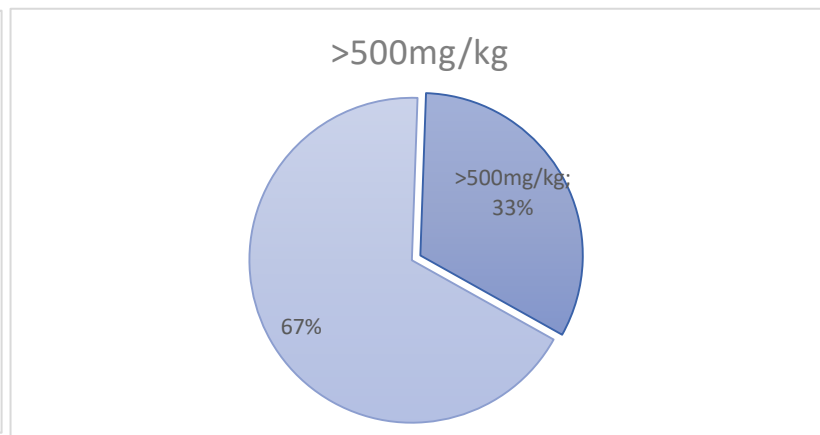
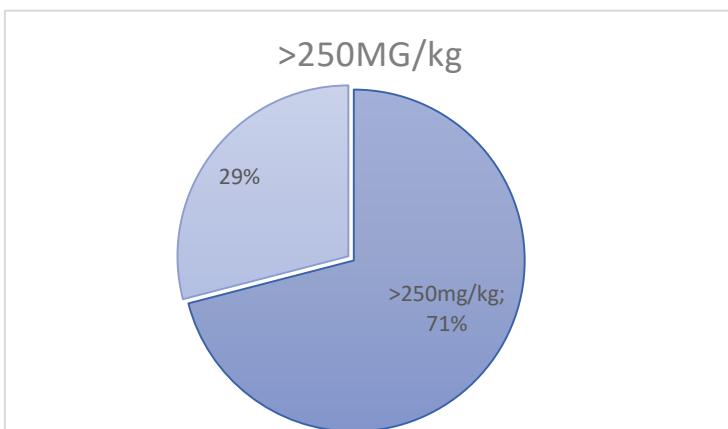
Interactive map of olive mills and olive varieties

Olive oils from Greece

In this part of the <<Aristoil>> program we analyzed 1266 olive oil sample from Greece. We received olive samples were collected from 35 regional units of Greece. We focused on the region of Peloponnese which is the main olive oil producing region of Greece

After the analysis of 1266 olive oil samples we came to some basic conclusions which conclude results from Greece.

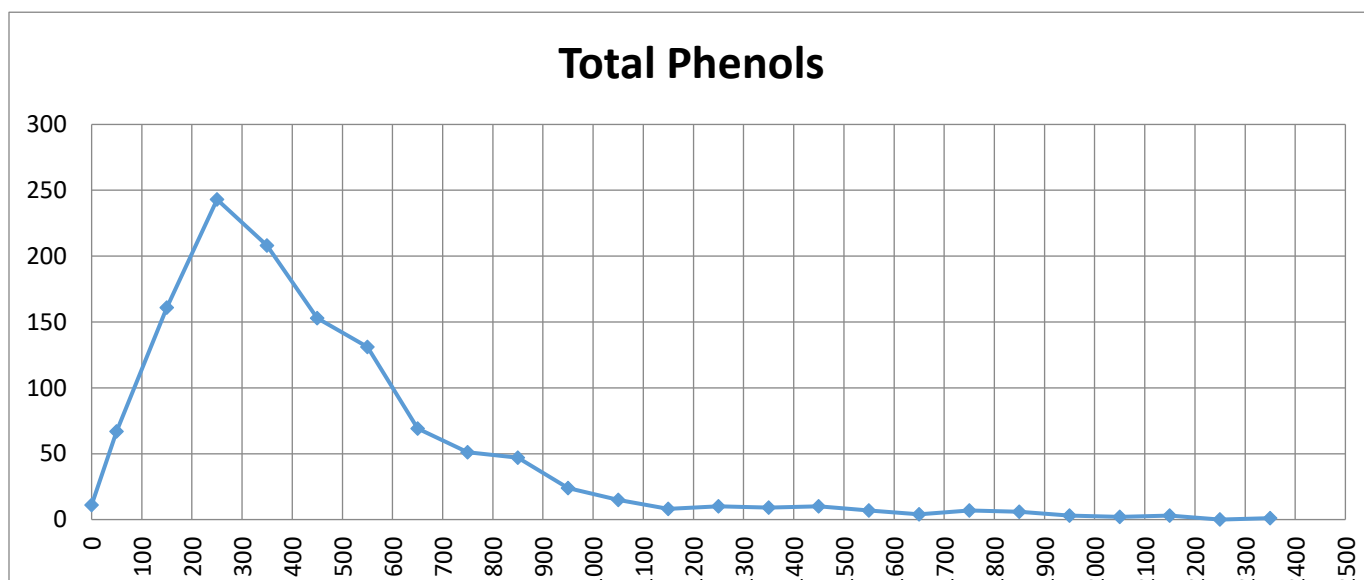
- To 71% of the olive oil samples we analyzed contain more than 250 mg/kg
- To 33% of the olive oil samples we analyzed contain more than 500 mg/kg
- To 7% of the olive oil samples we analyzed contain more than 1000 mg/kg



In addition some important conclusions of this project are:

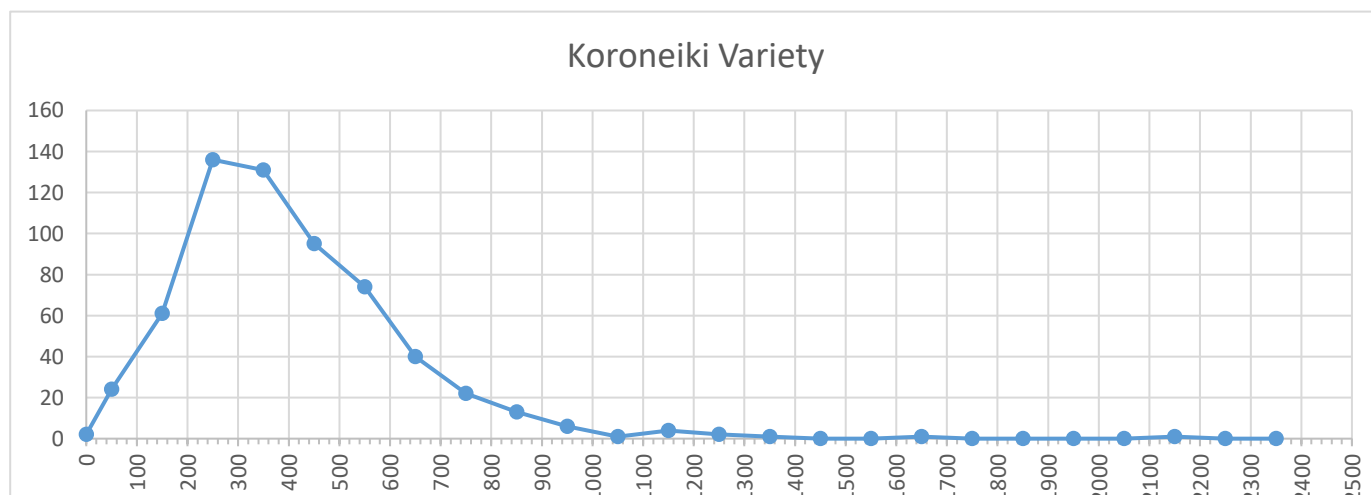
- Only 11 out of 1250 oliveoil samples we analyzed had zero phenolic content
- The richest olive oil sample contained 3069 mg/kg
- 85 olive oil samples contained more than 1000mg/kg
- To 66% of the olive oil samples from the Olympia variety contained more than 1000mg/kg
- To 69% of the olive oil samples from the Manaki variety contained less than 250mg/kg

The distribution of the olive oil samples versus the total phenols is

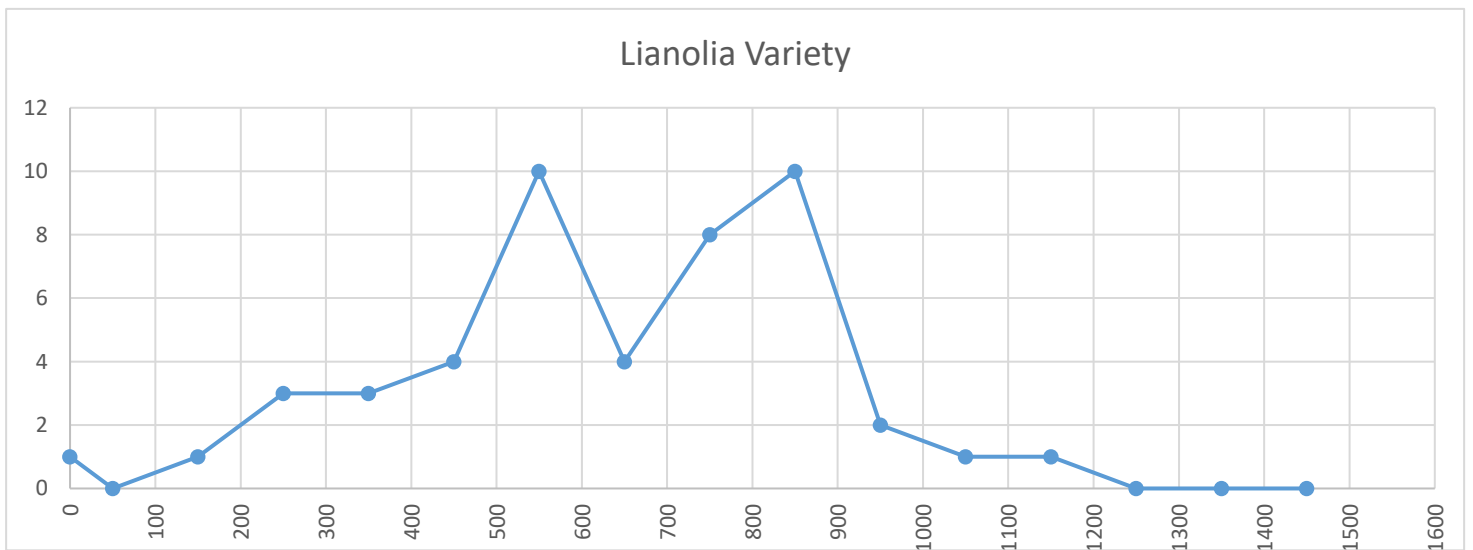
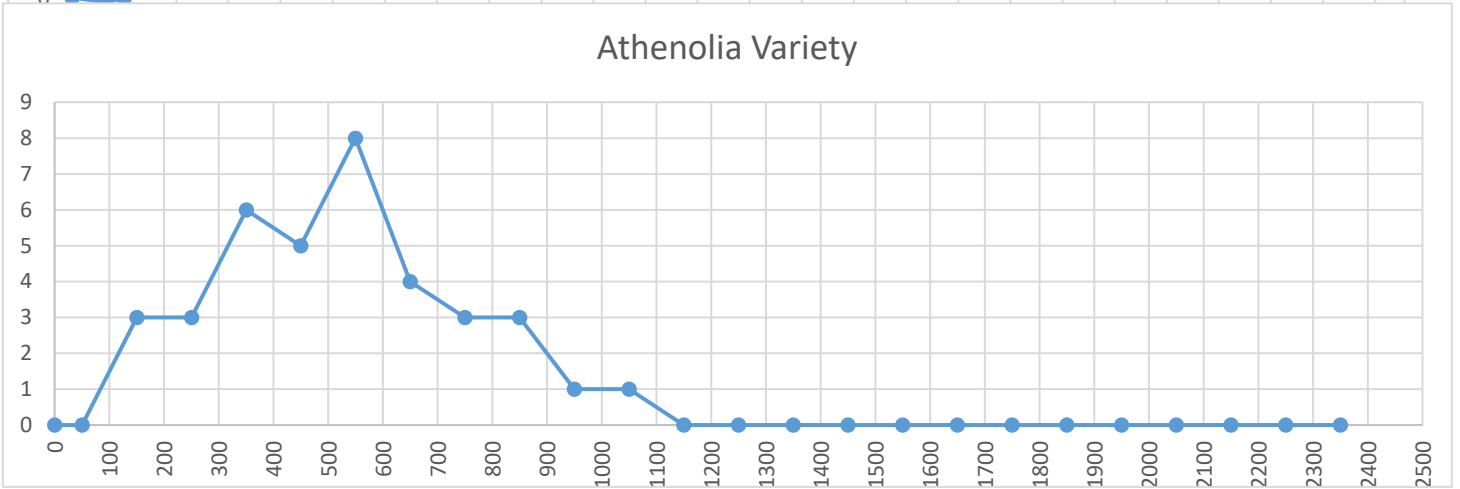
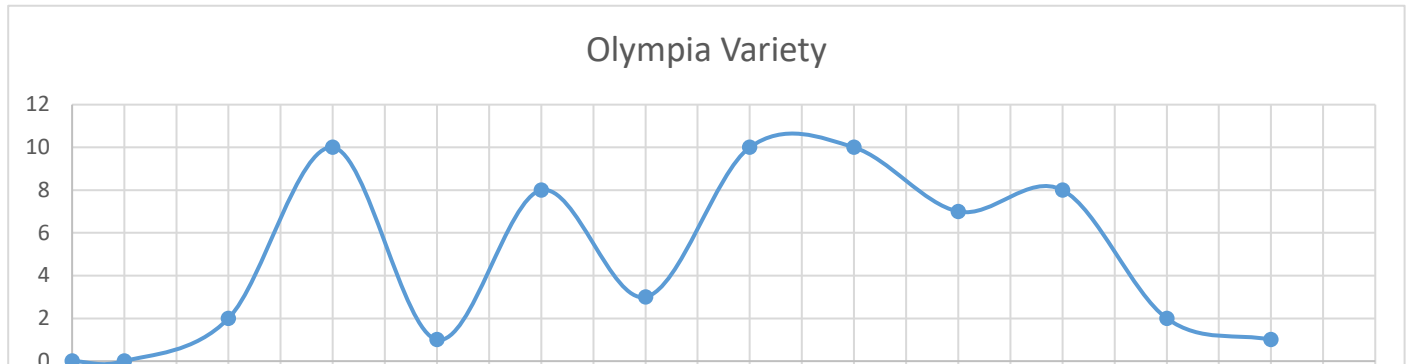


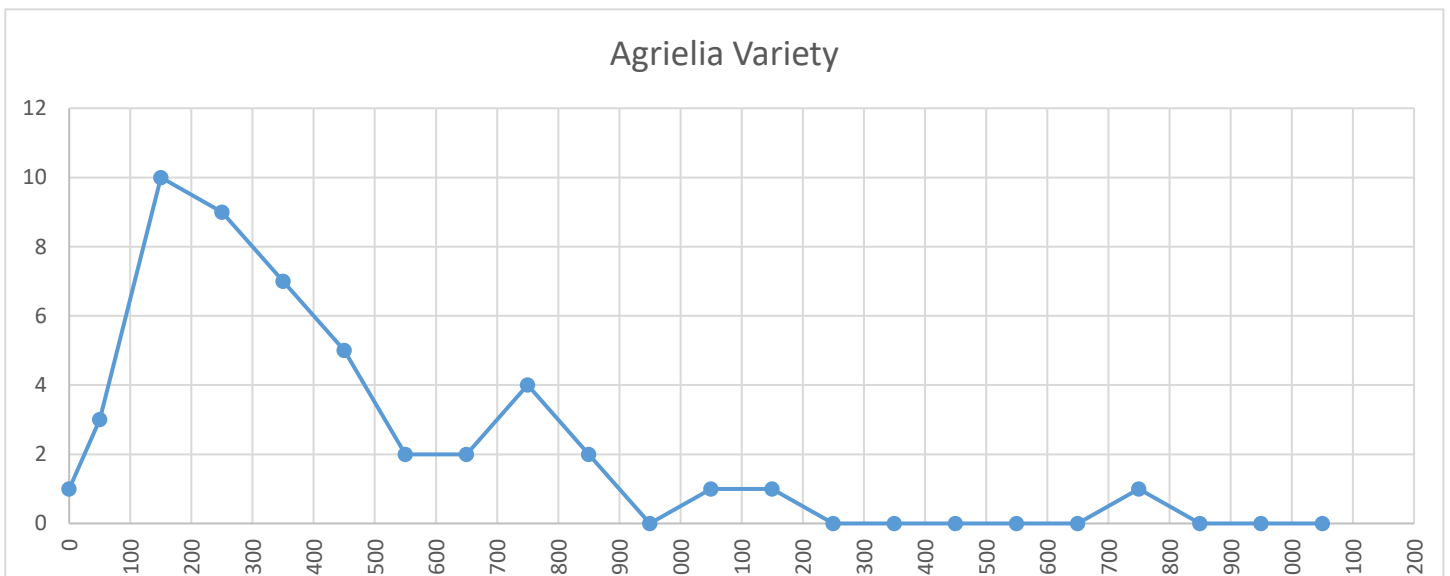
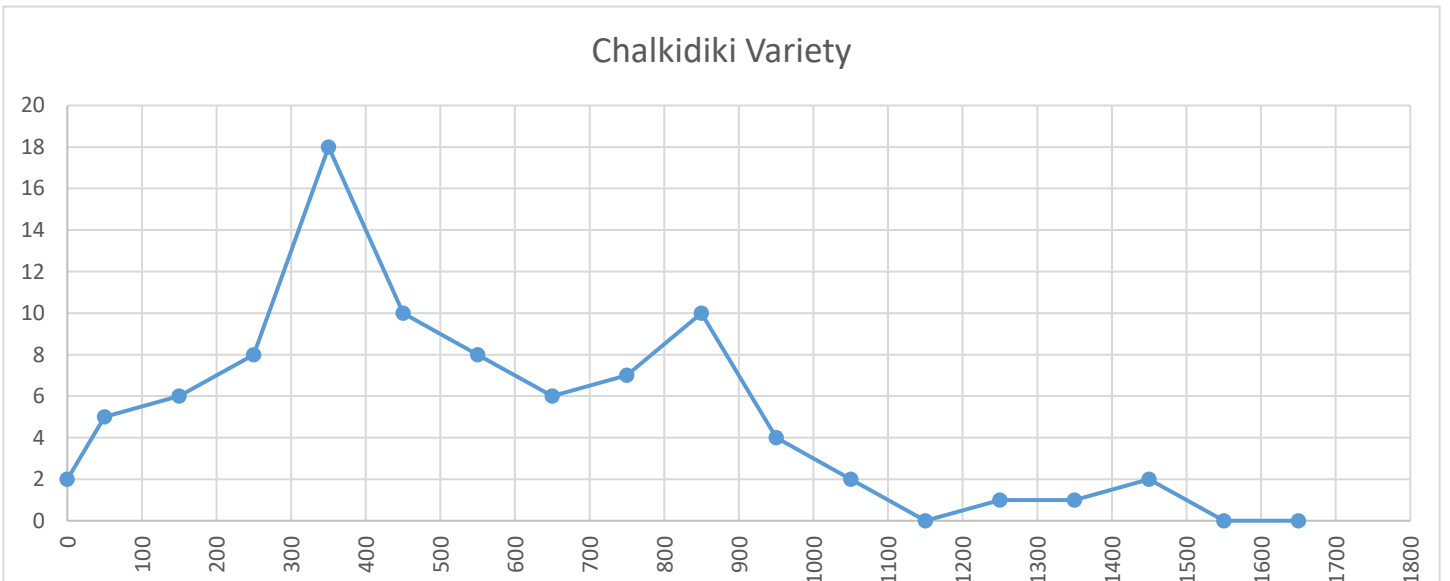
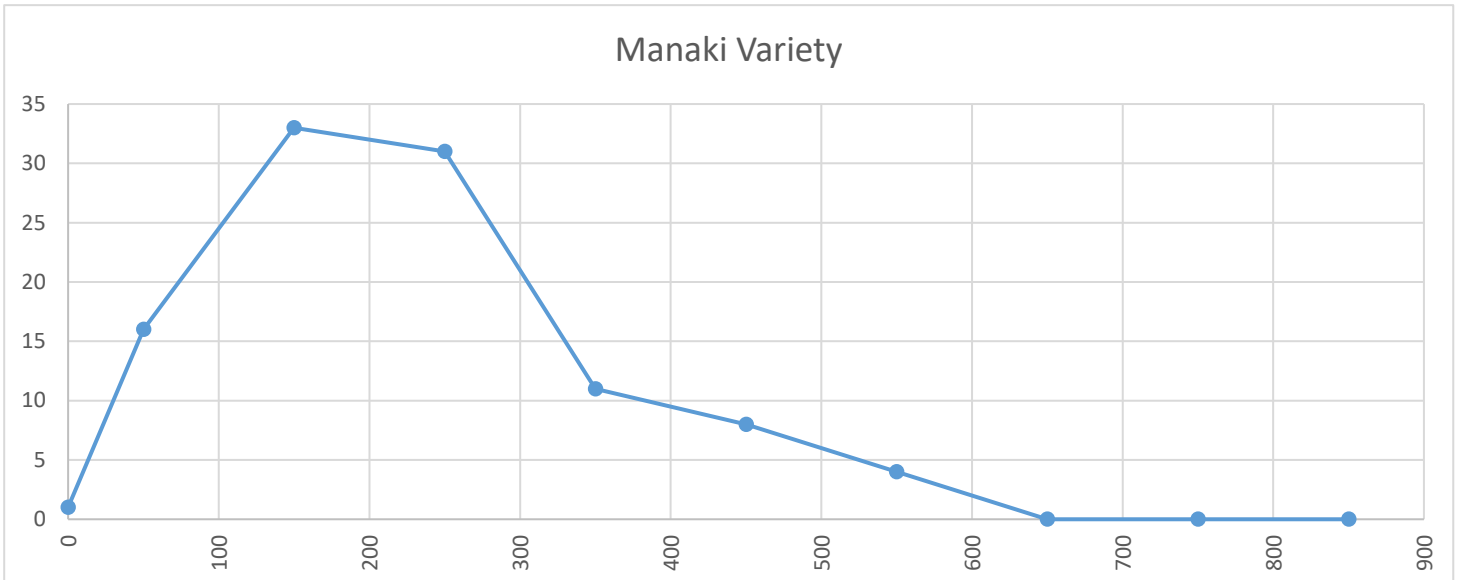
The phenolic distribution of the different varieties of Greek olive oil samples

- The same distribution for the Koroneiki variety is:



- Olympia Variety:



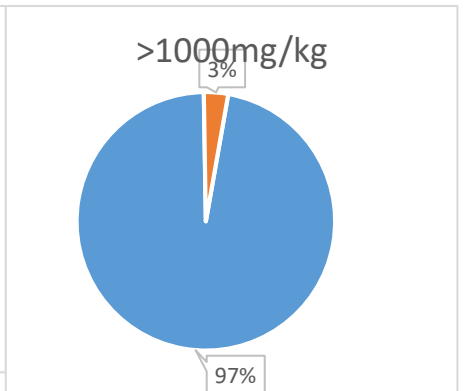
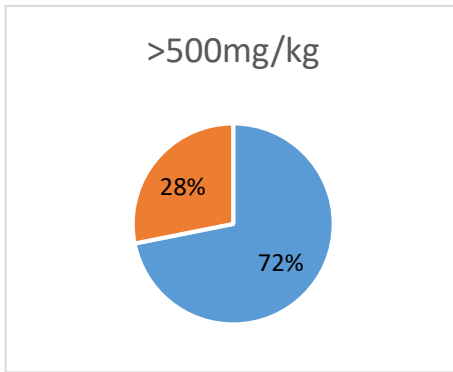
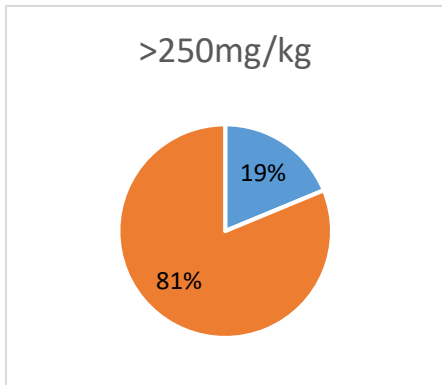
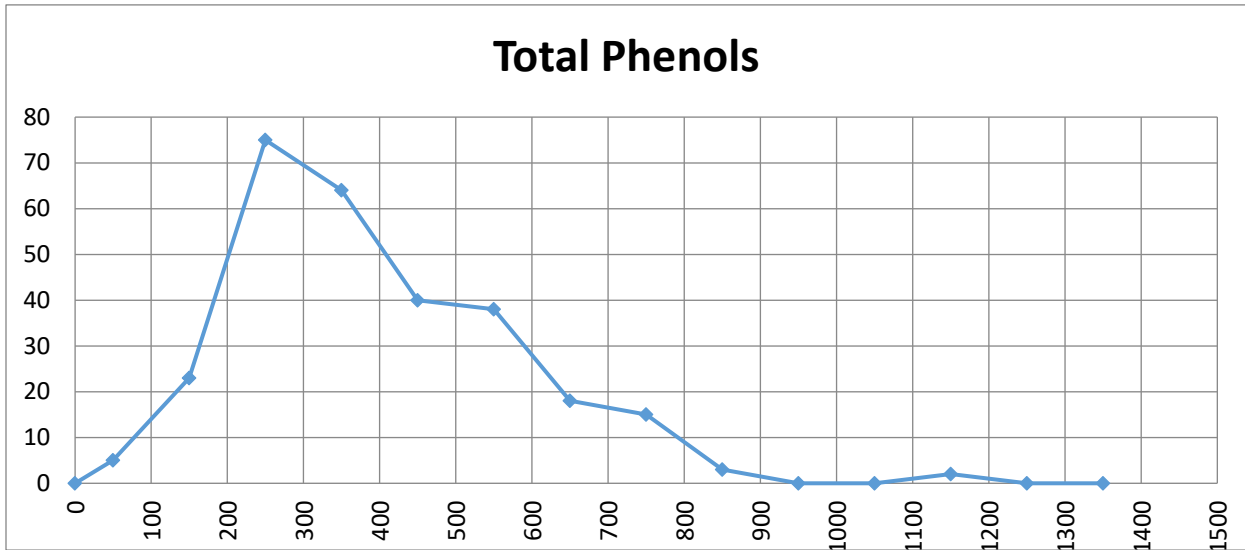


Regional unit of Messinia

In the next pages we perform the results for biggest regional units of Greece

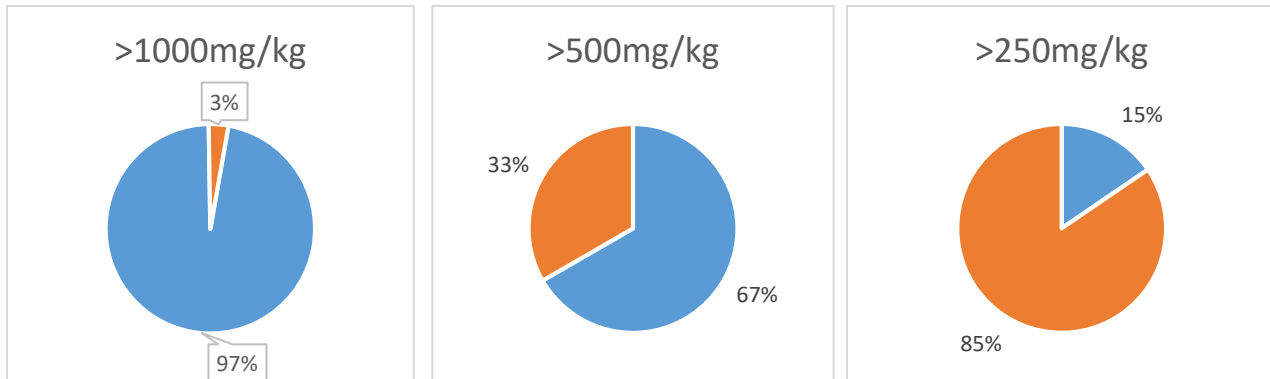
Messinia

The olive oil sample distribution is:

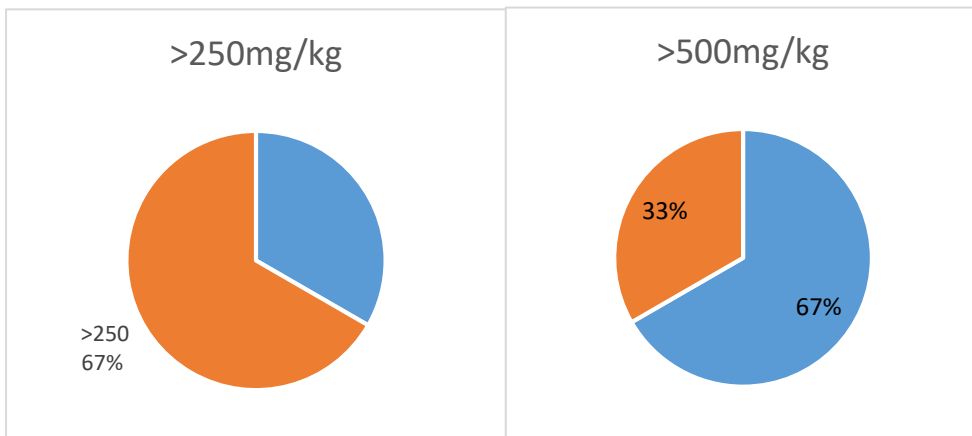


For the regional unit of Messinia we separated the following municipalities :

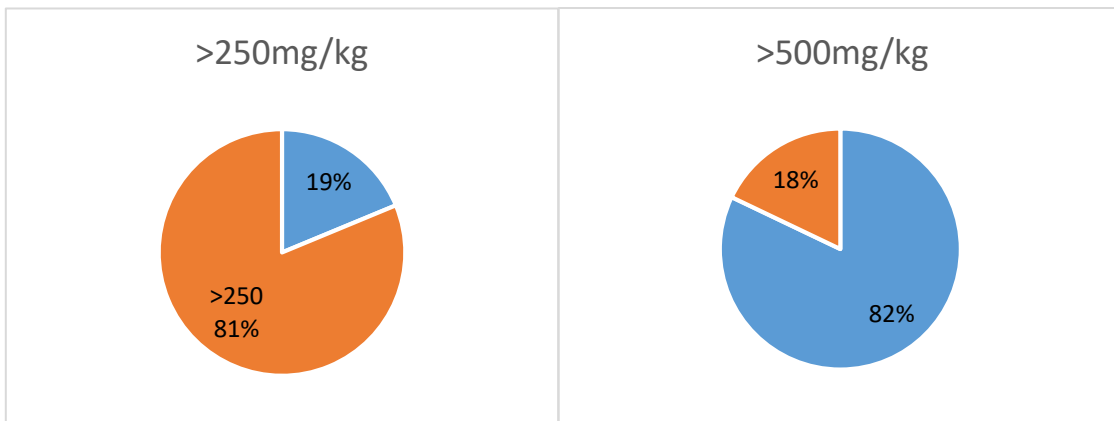
- Municipality of Kalamata: Av.= 414mg/kg



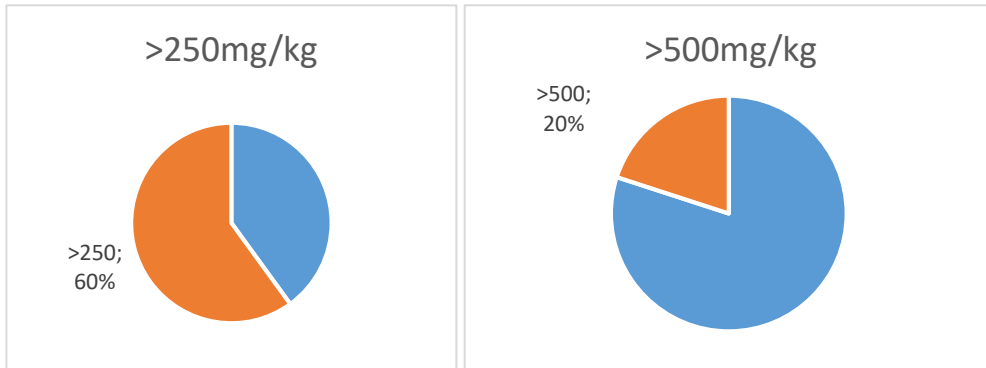
- Municipality of west Mani Av.=404mg/kg



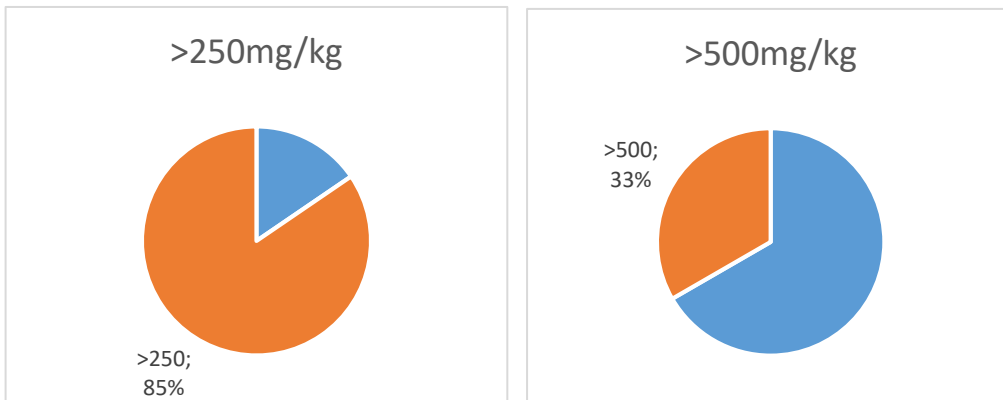
- Municipality Of Messini Av.=367mg/kg



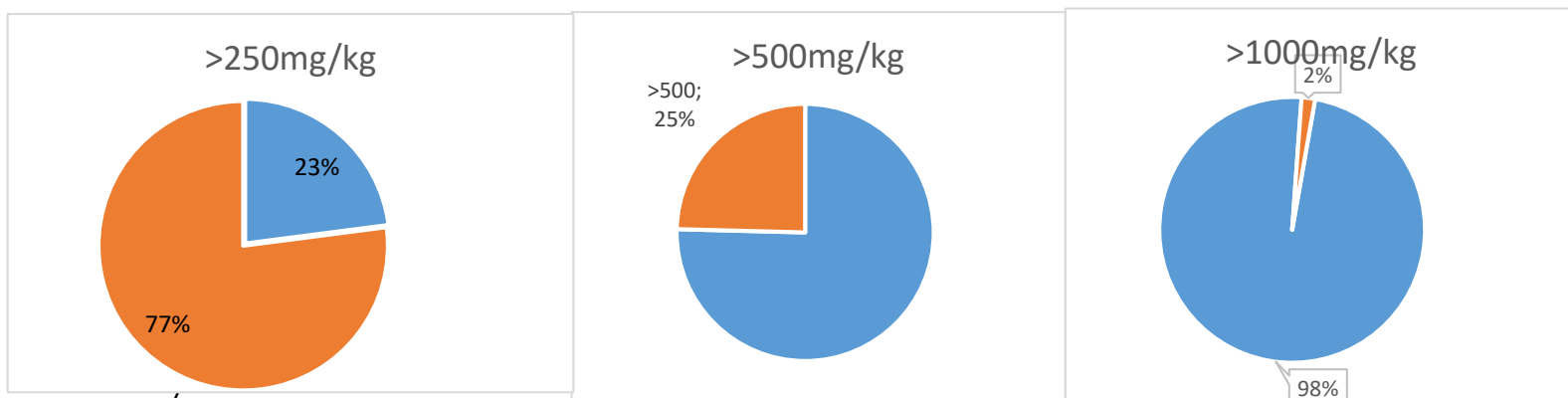
- Municipality of Oichalia Av.=319mg/kg



- Municipality of Pylos Av.=423 mg/kg

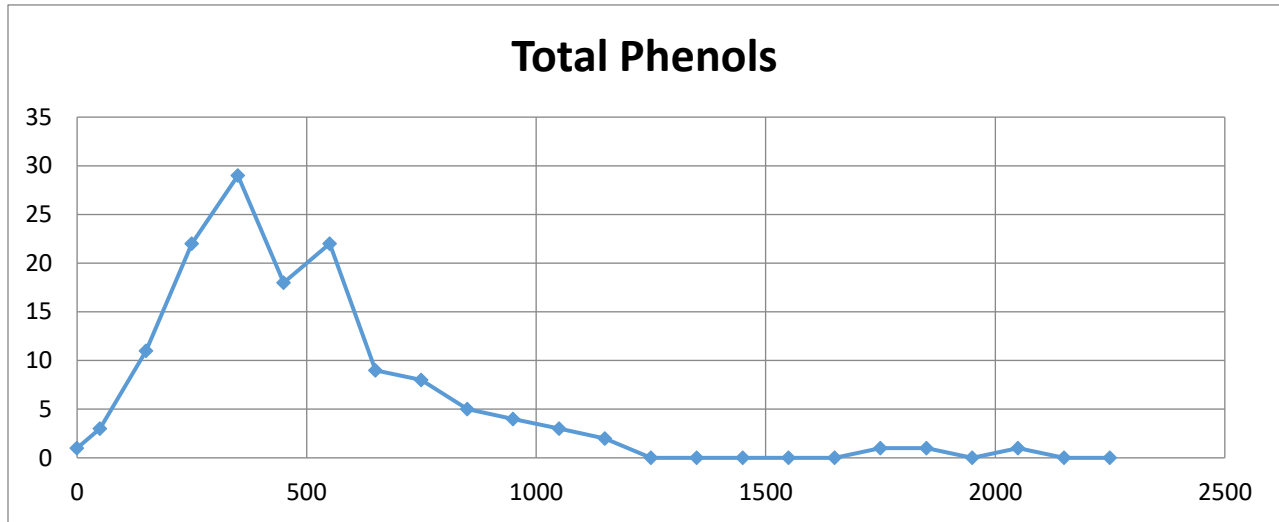


- Municipality of Trifillia Av.=375mg/kg

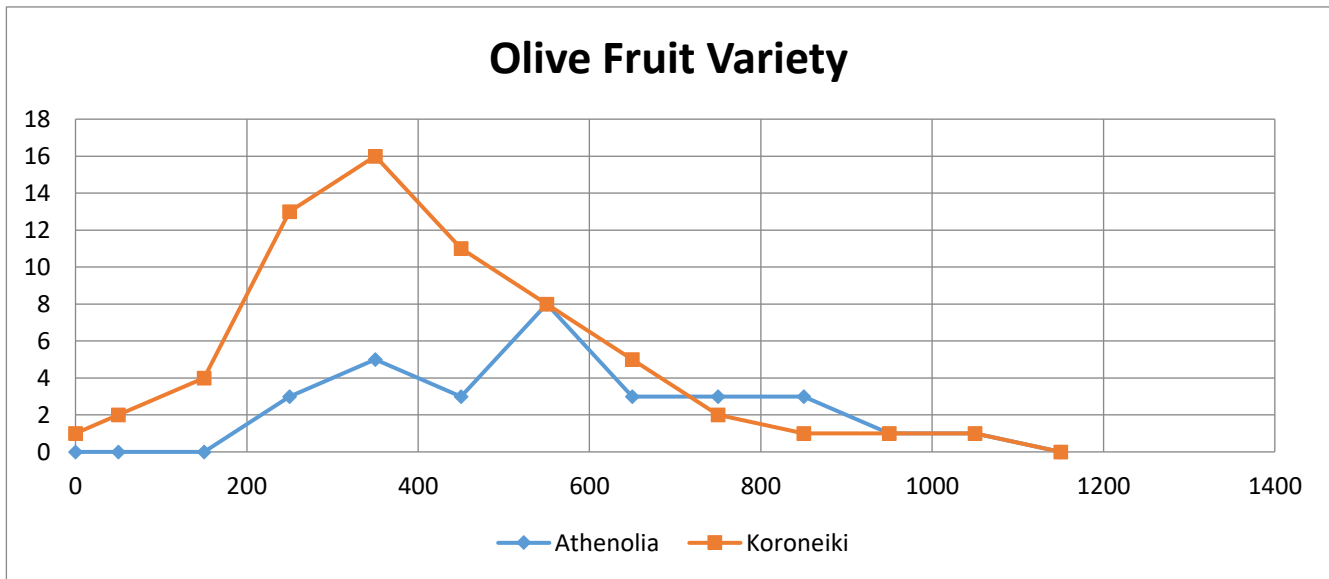


Regional unit of Laconia

The distribution of the olive oil samples from the regional unit of Lakonia is

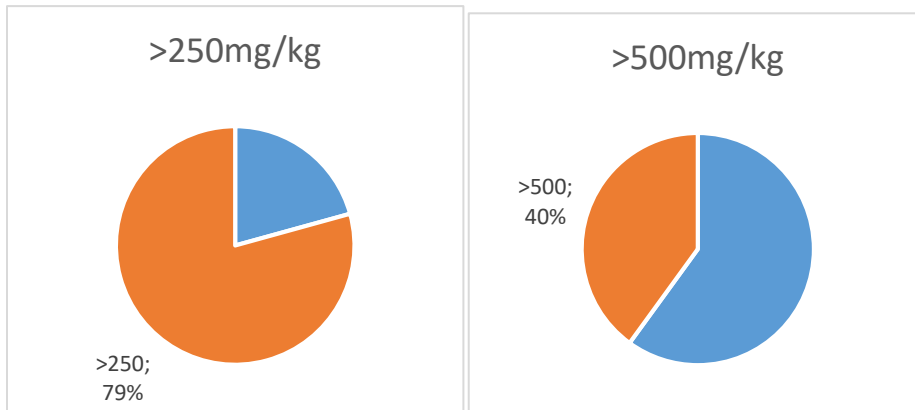


We compared the two main olive varieties of the region Lakonia

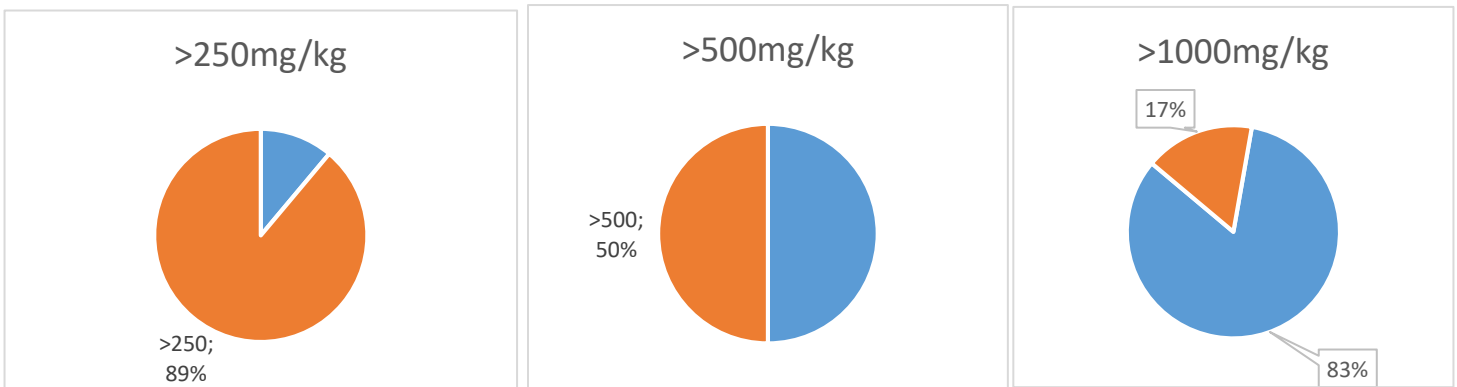


The Lakonian municipalities are:

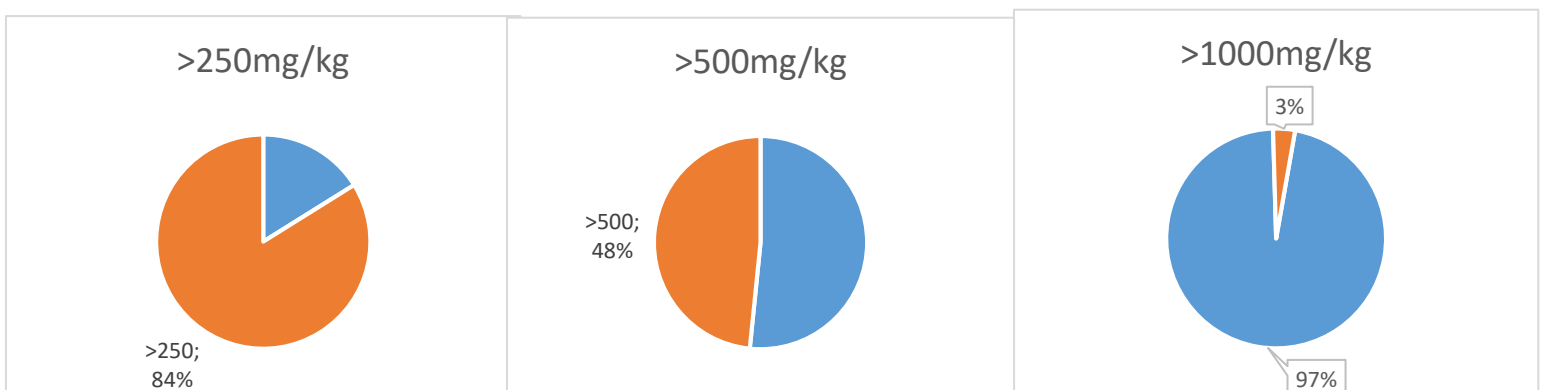
- Municipality of East Mani AV.=408mg/kg



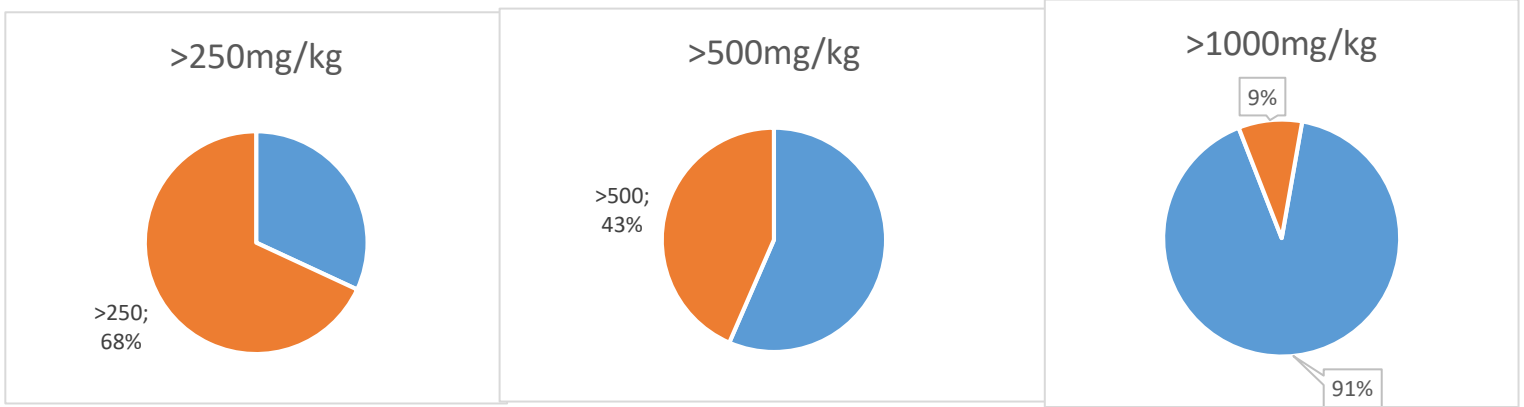
- Municipality of Eurotas AV.=596mg/kg



- Municipality of Monemvasia AV.=512mg/kg

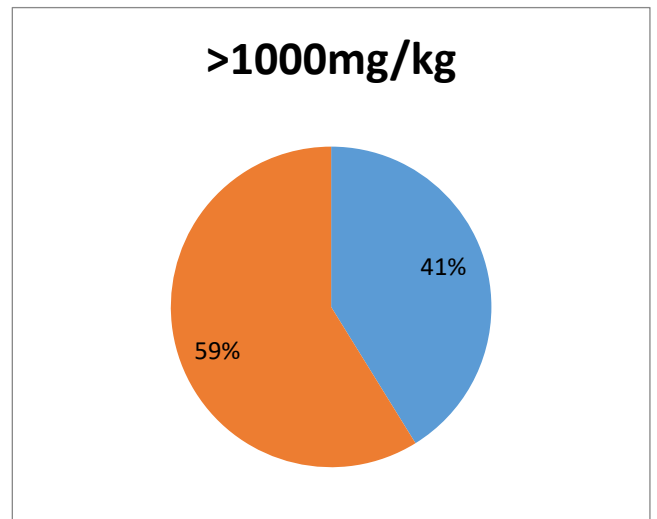
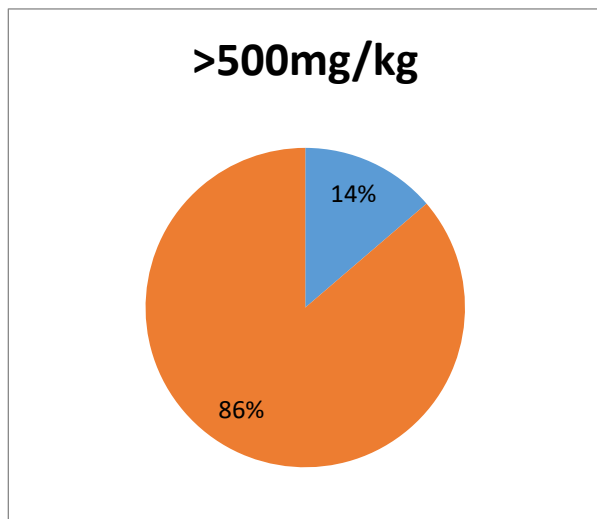


- Municipality of SpartaAV.=511mg/kg



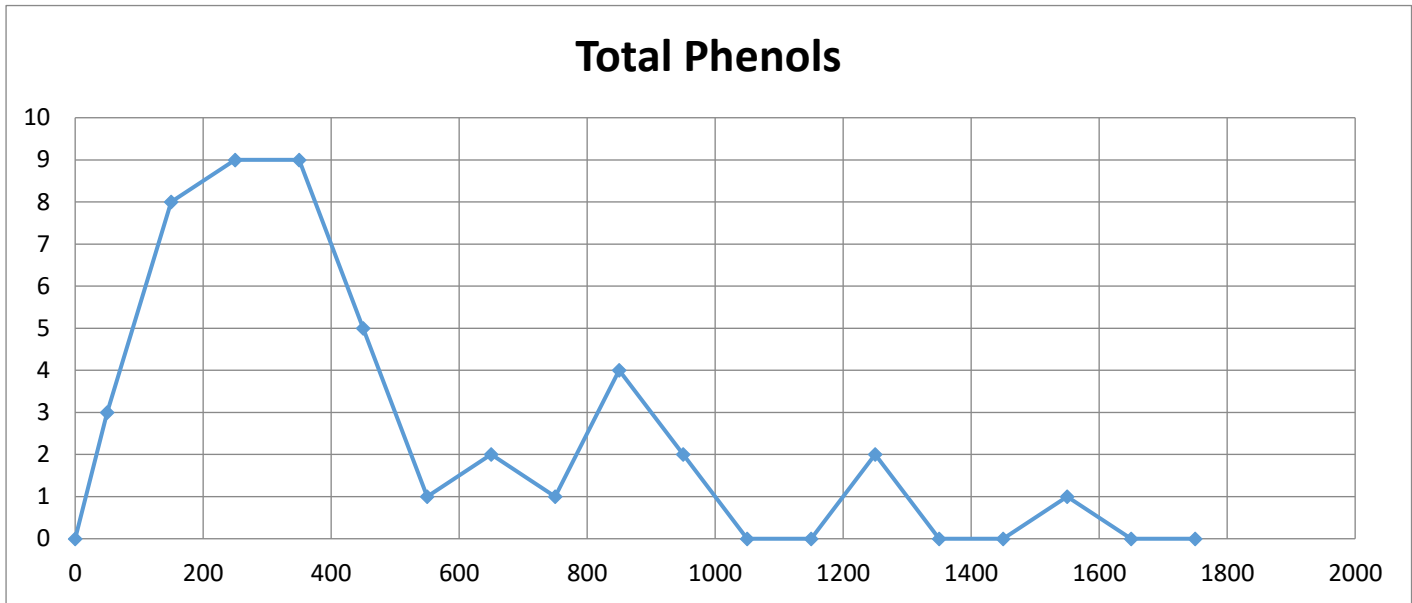
Regional unit of Arcadia

Regional unit of Arcadia Av:1137mg/kg

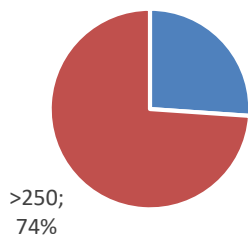


Regional unit of Korinthos

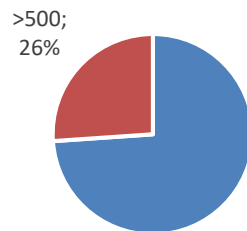
Regional unit of Korinthos Av=430 mg/kg



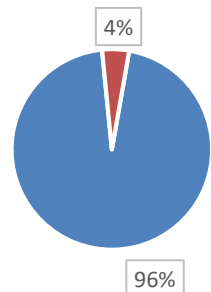
>250mg/kg



>500mg/kg

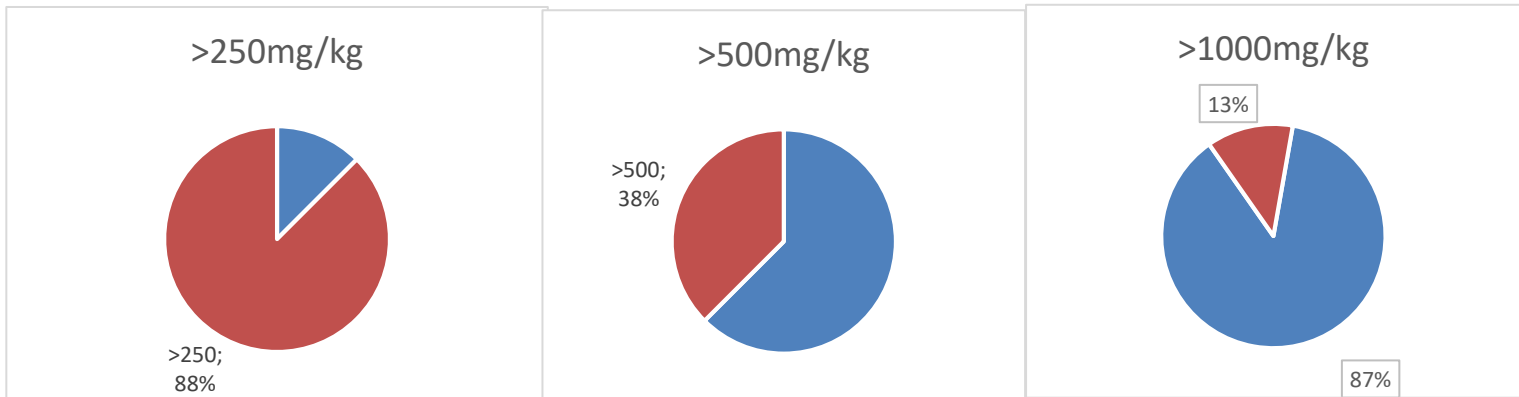


>1000mg/kg

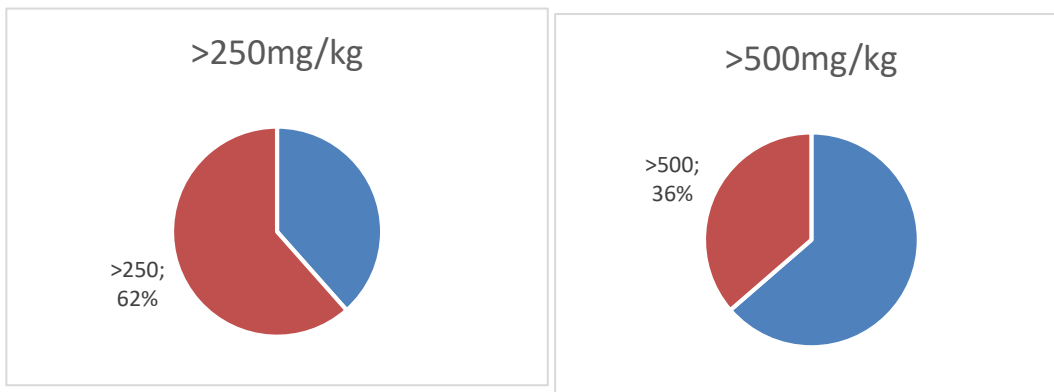


The municipalities of Corinthos are:

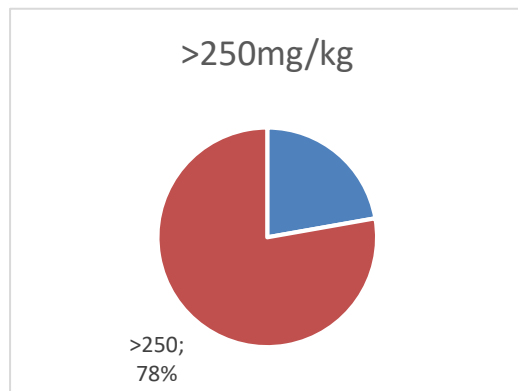
- Municipality of Corinth AV.=556mg/kg



- Municipality of Loutraki AV.=382mg/kg



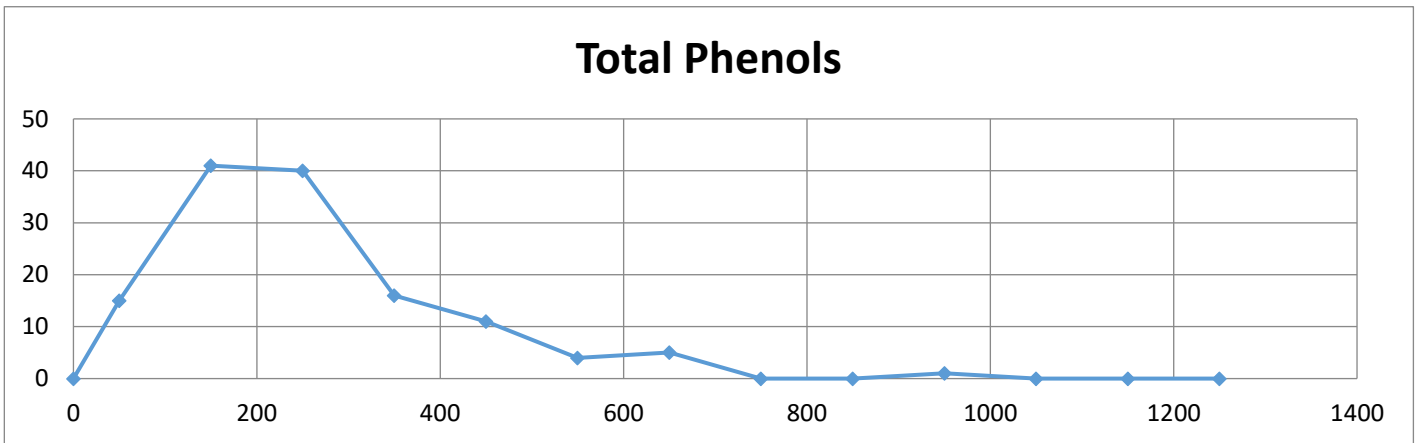
- Municipality of Sikion AV.=277mg/kg



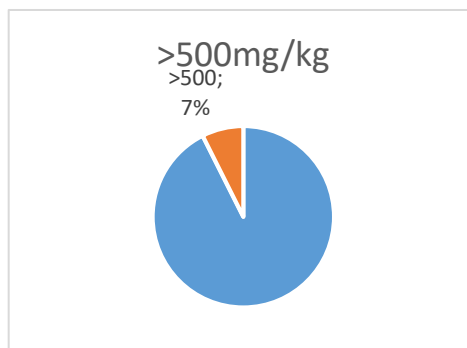
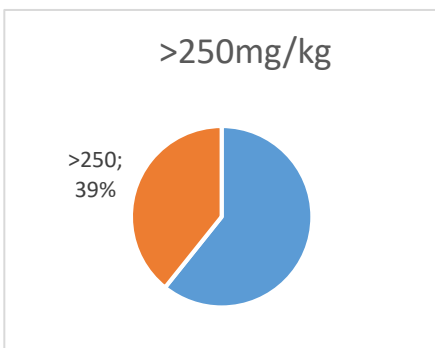
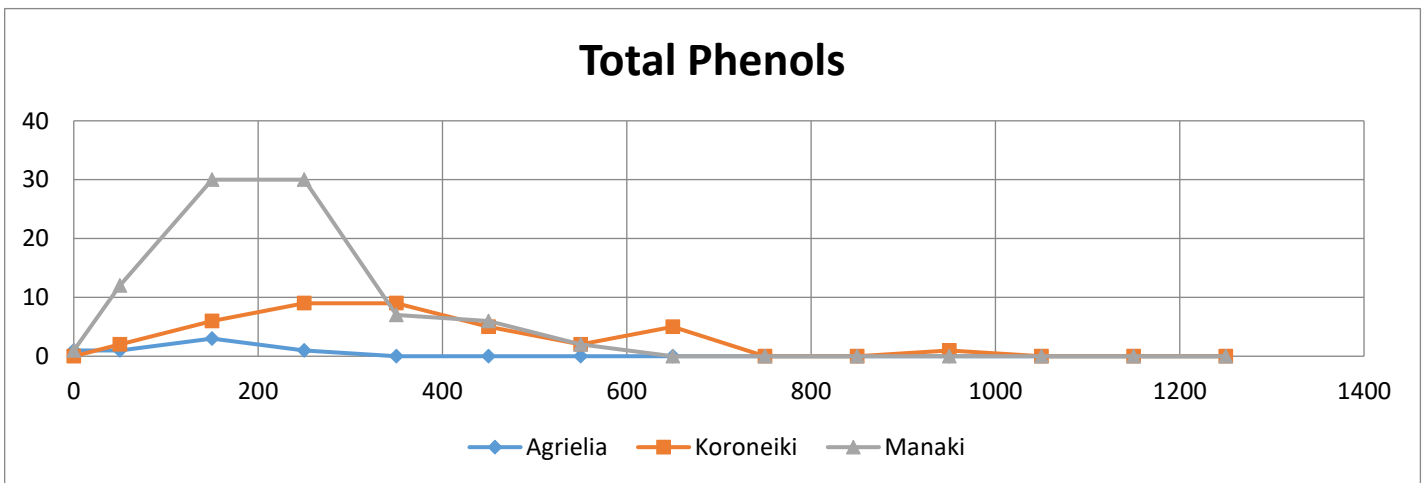
Regional unit of Argolis

Regional unit of ArgolisAV.=251mg/kg

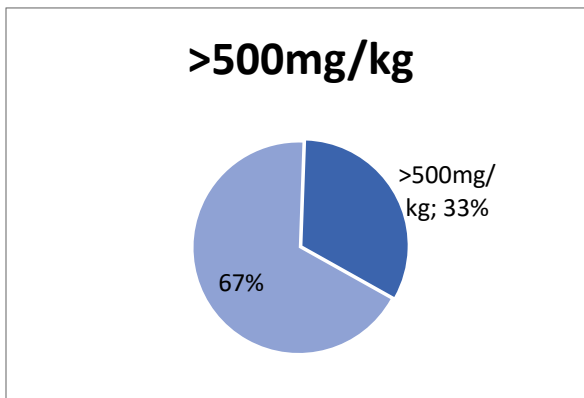
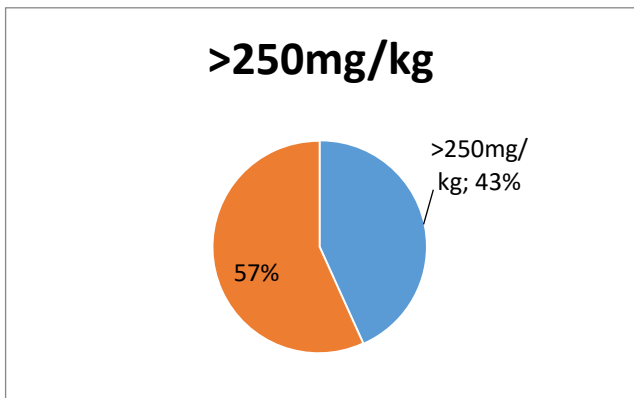
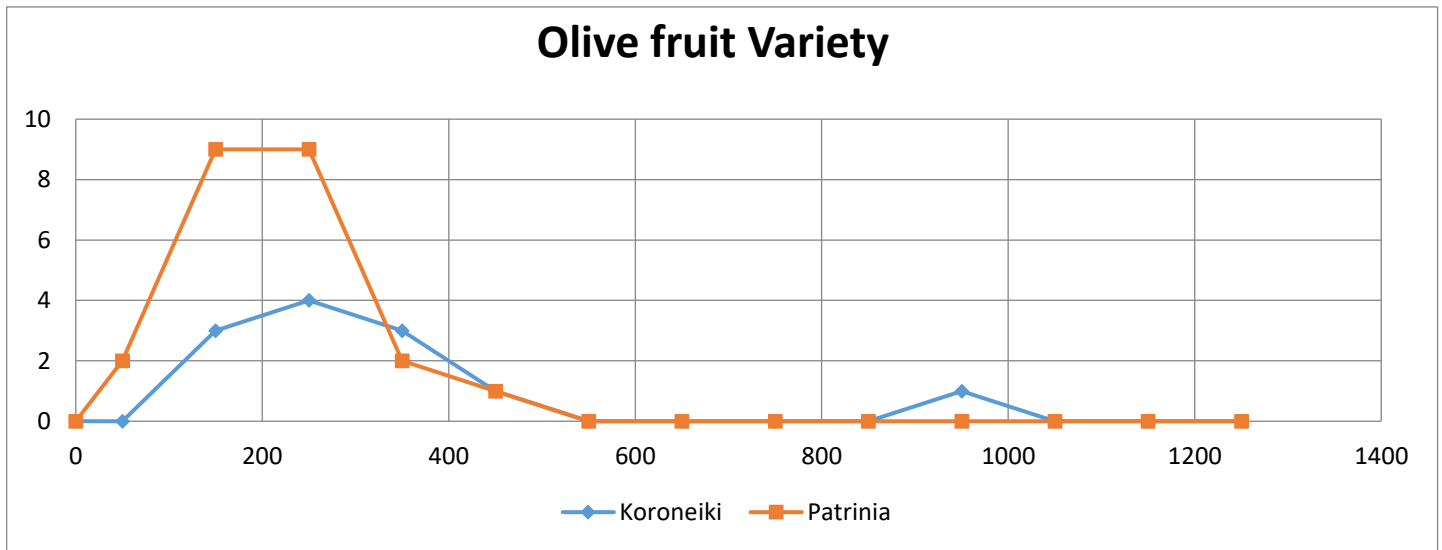
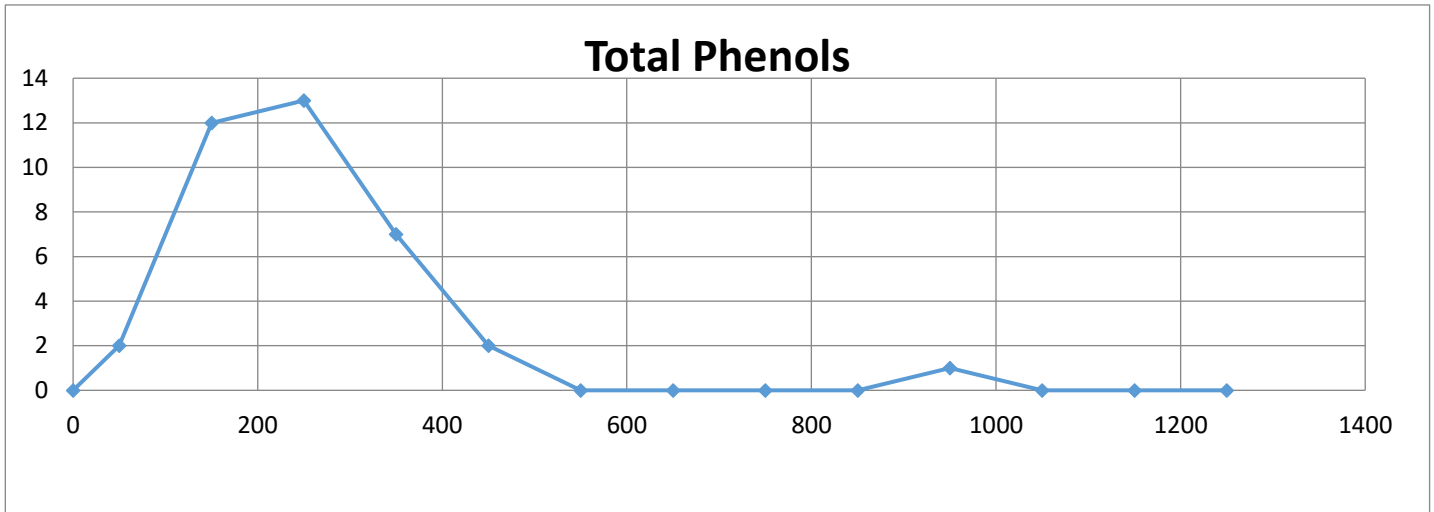
The olive oil sample distribution versus total phenols is



We compared the three main olive fruit varieties

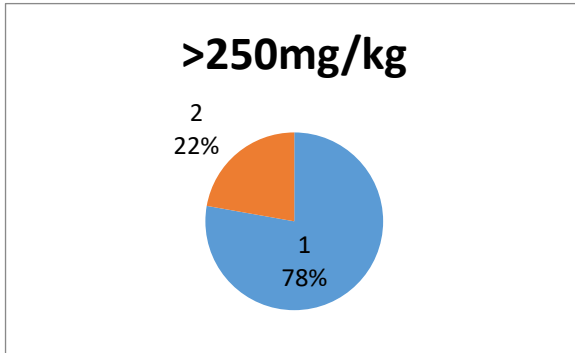


Regional unit of Achaia
 AchaiaRegional unitAv. = 255mg/kg

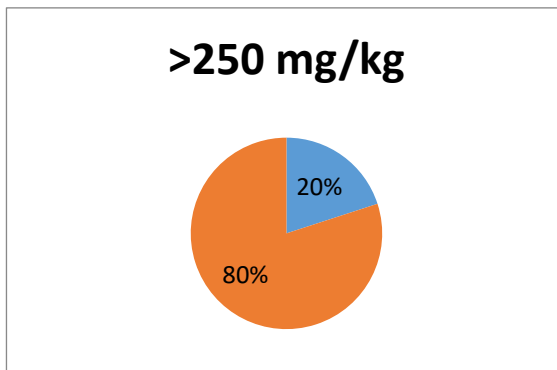


The municipalities of Achaia are :

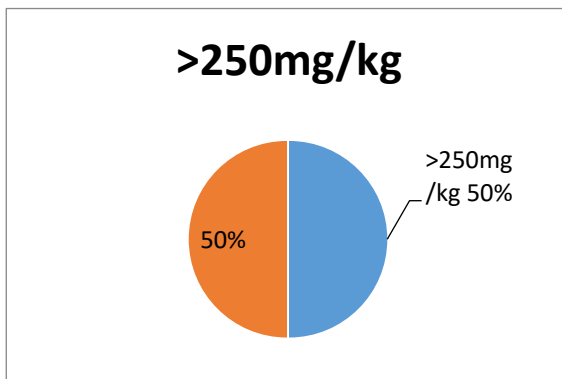
- Municipality of Aigio M.O.=197mg/kg



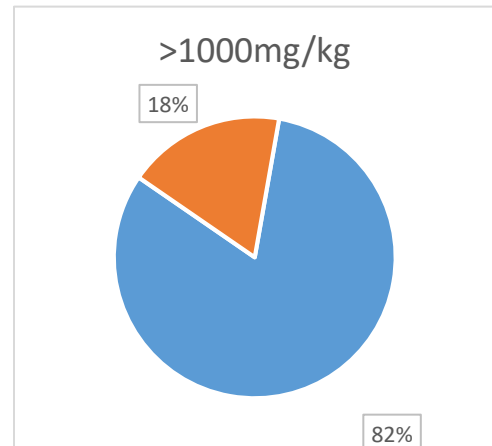
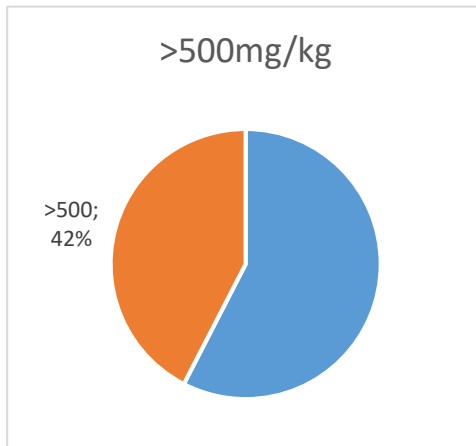
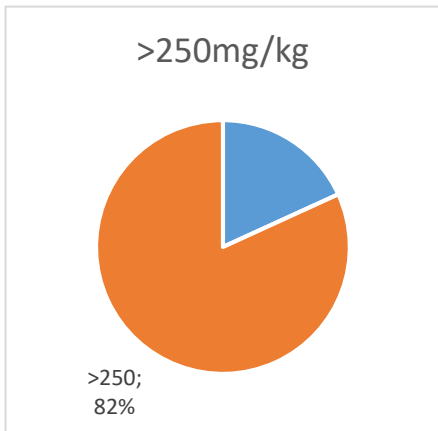
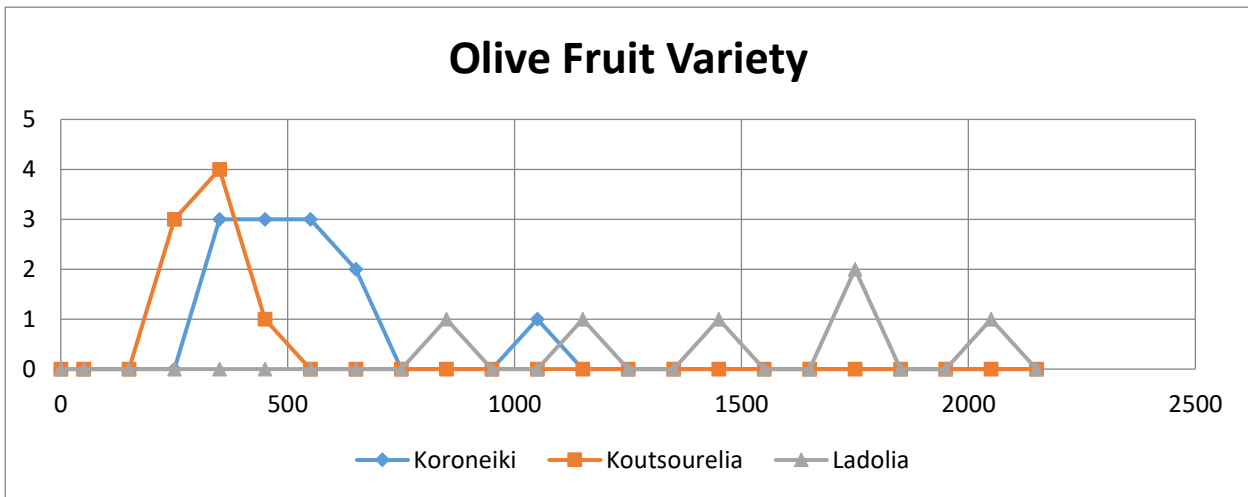
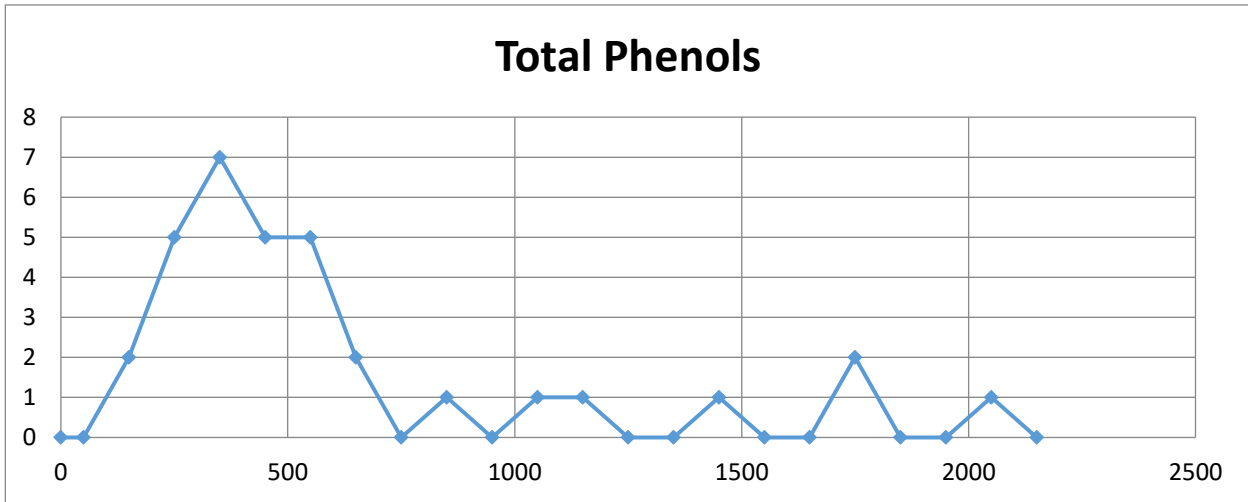
- Municipality of Kalavrita AV.=327mg/kg



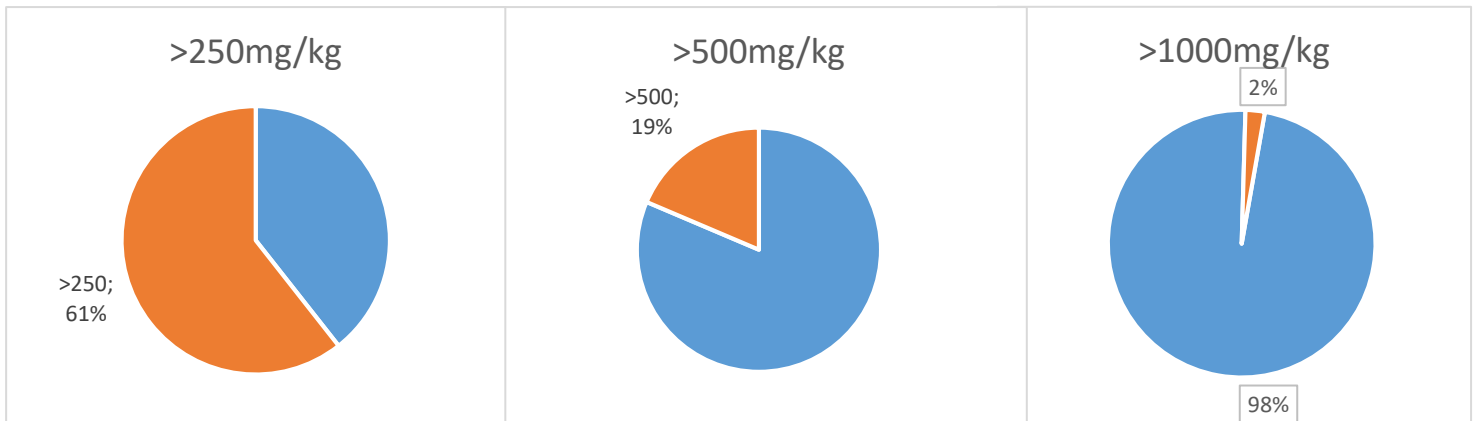
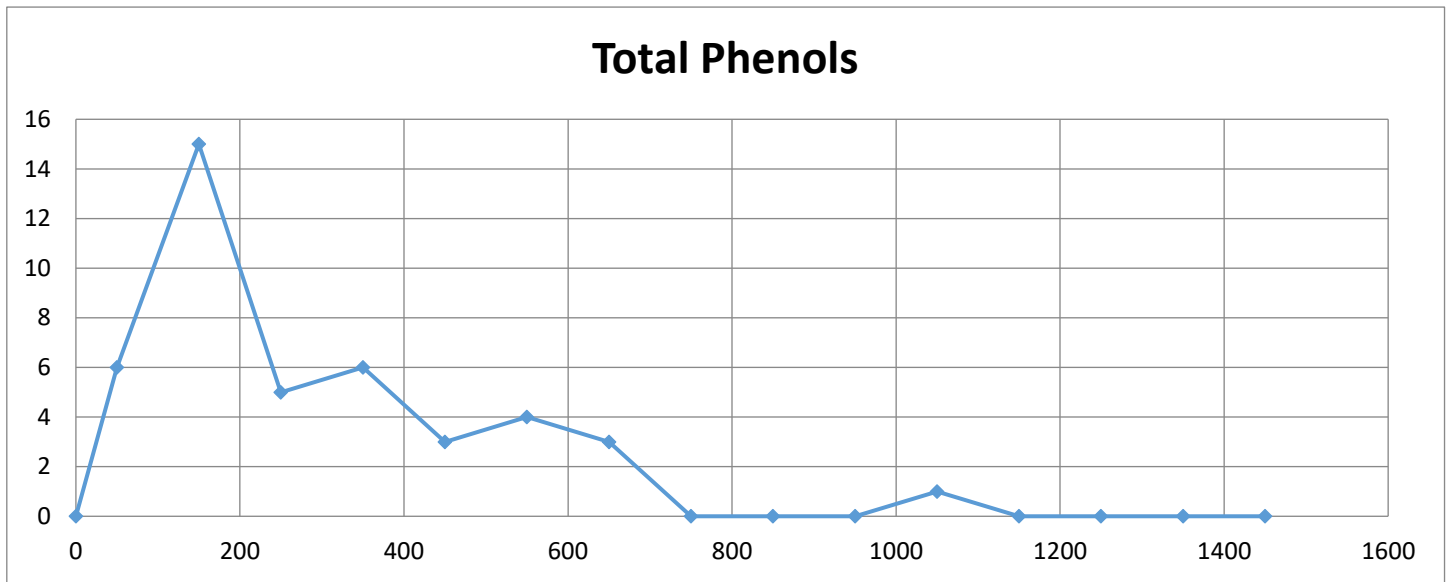
- Municipality of Patra AV.=407mg/kg



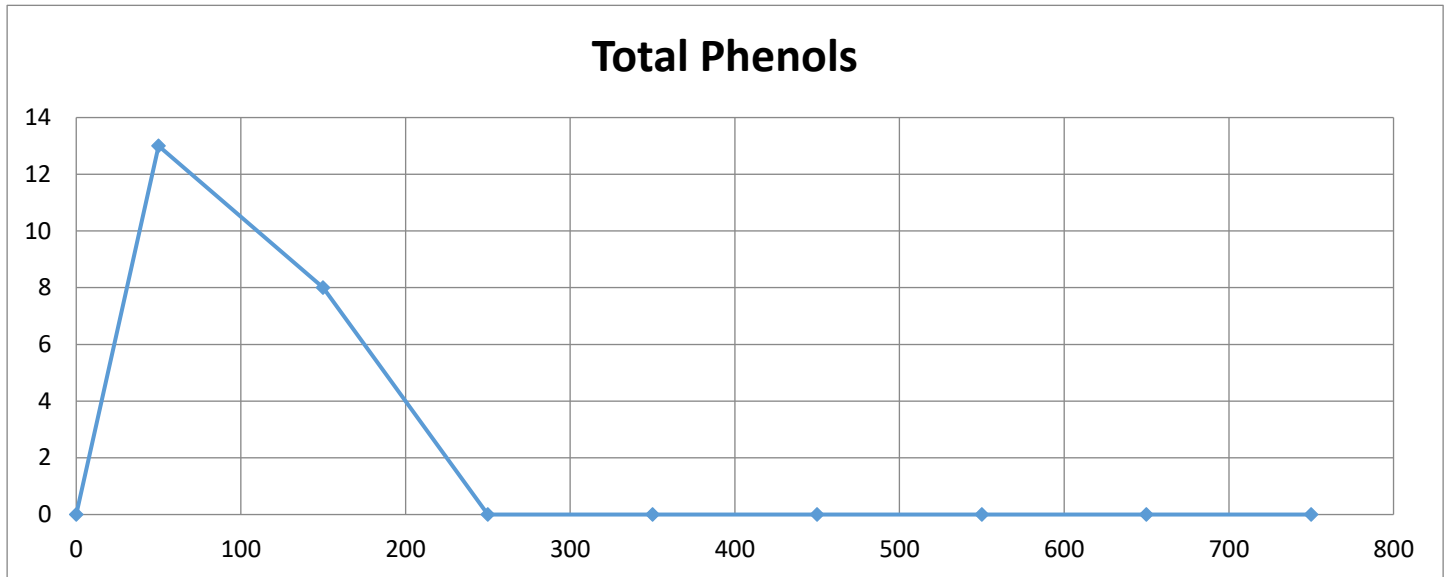
Regional unit of Aitoloakarnania
 Regional unit of Aitoloakarnania AV=610mg/kg



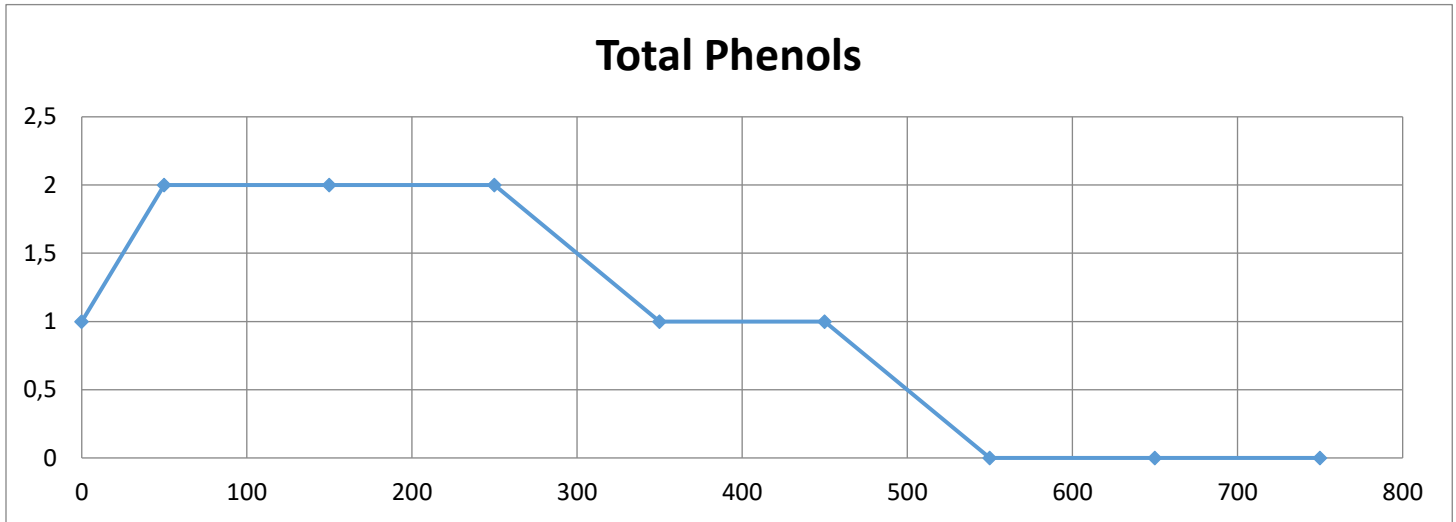
Regional unit of AtticaAV.=294mg/kg



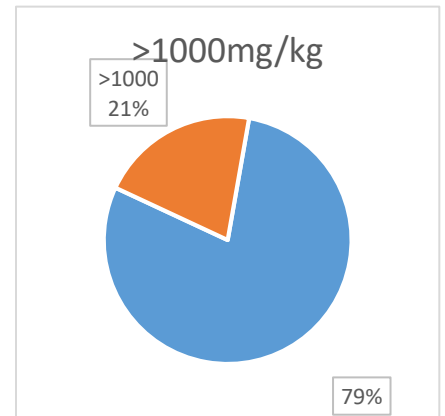
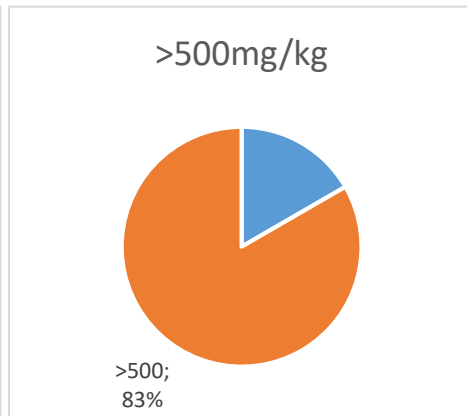
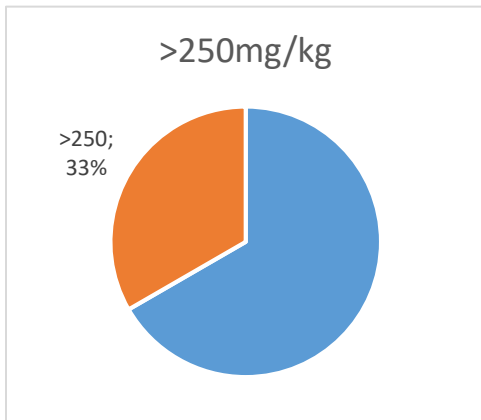
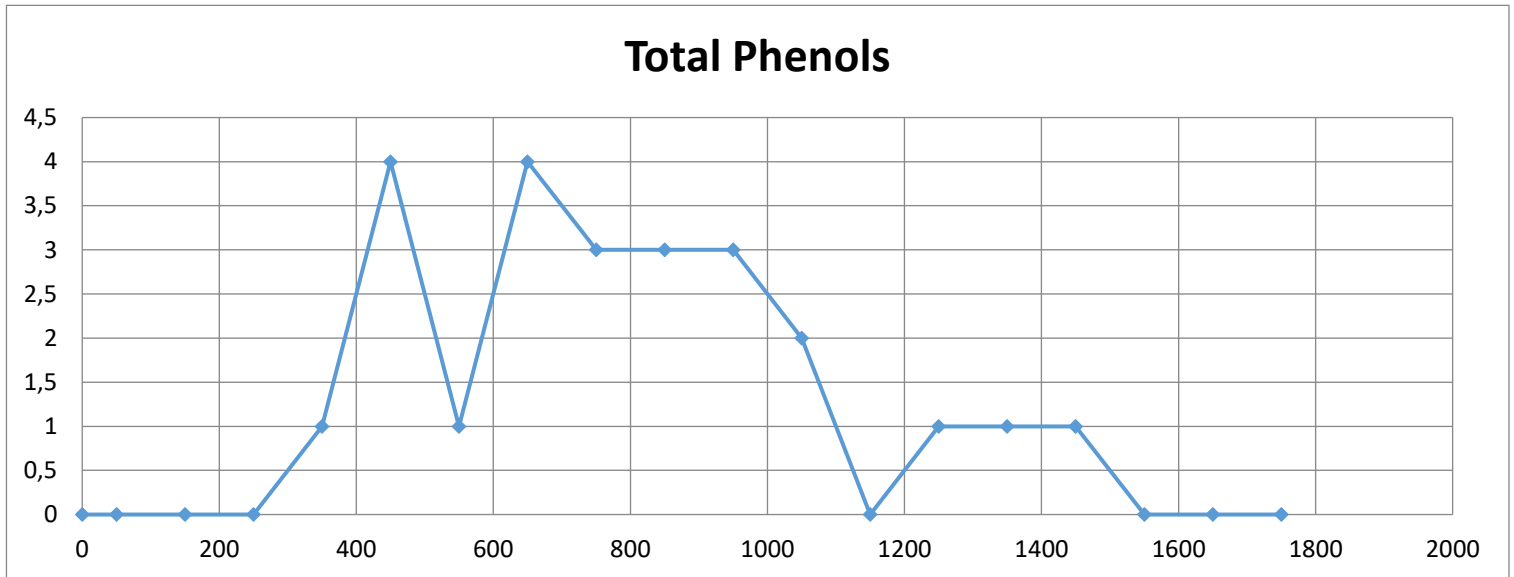
Regional unit of Biotia AV.=107mg/kg



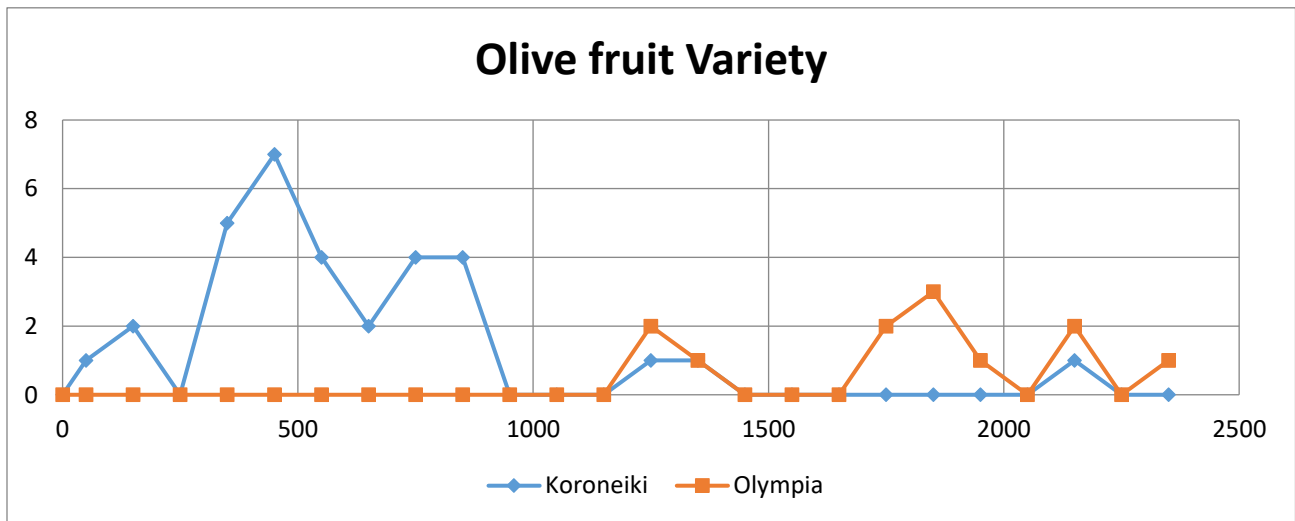
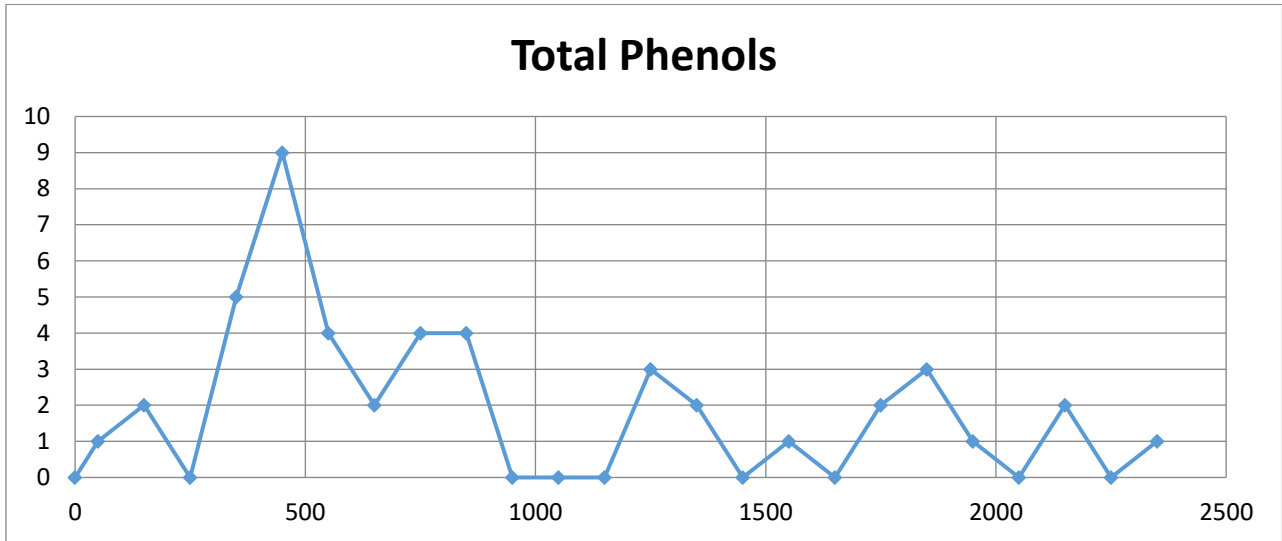
Regional unit of Evia AV.=190mg/kg



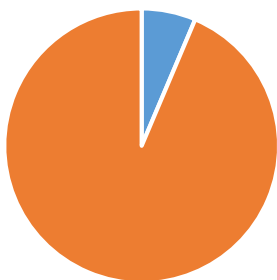
Regional unit of Zakynthos AV.=790mg/kg



Regional unit of Iliava = 935mg/kg

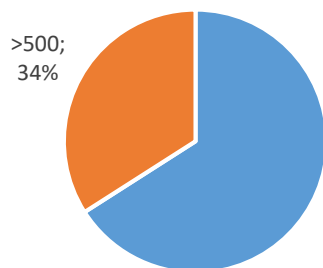


>250mg/kg



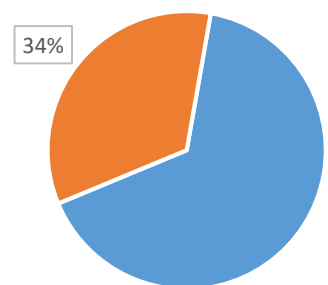
>250;
94%

>500mg/kg



>500;
34%

>1000mg/kg

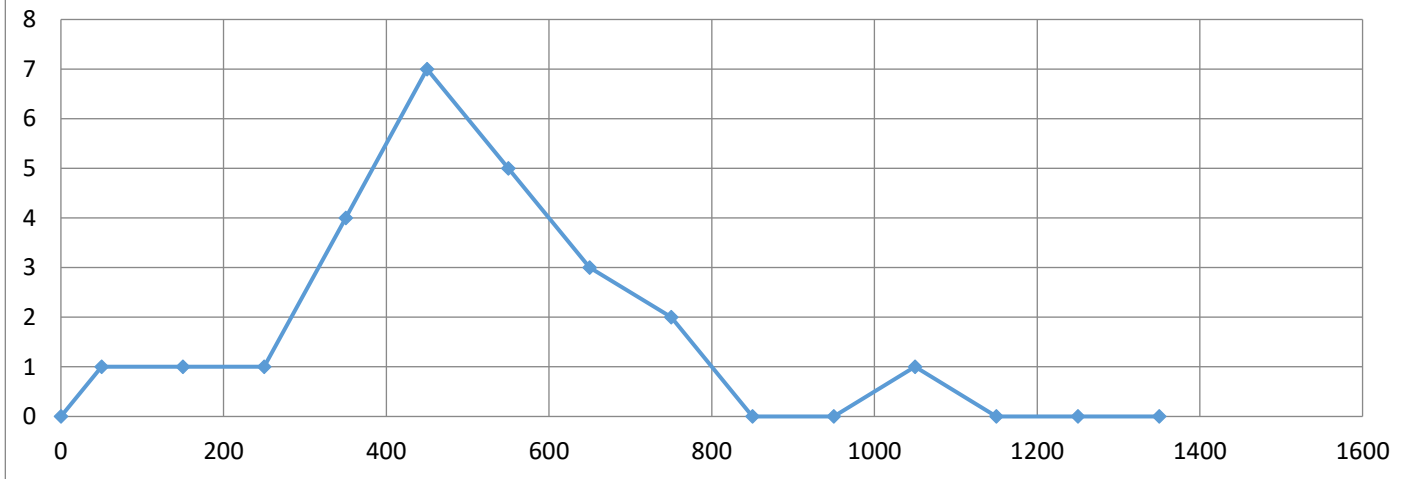


34%

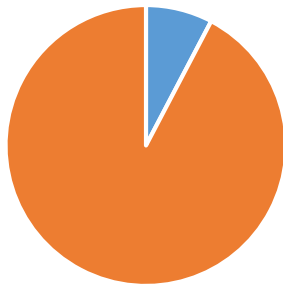
66%

Regional unit of Herakleion Av.=489mg/kg

Total Phenols

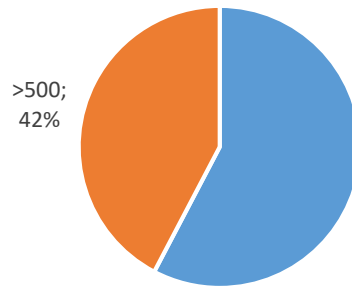


>250mg/kg



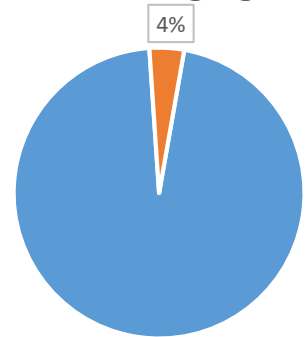
>250;
92%

>500mg/kg



>500;
42%

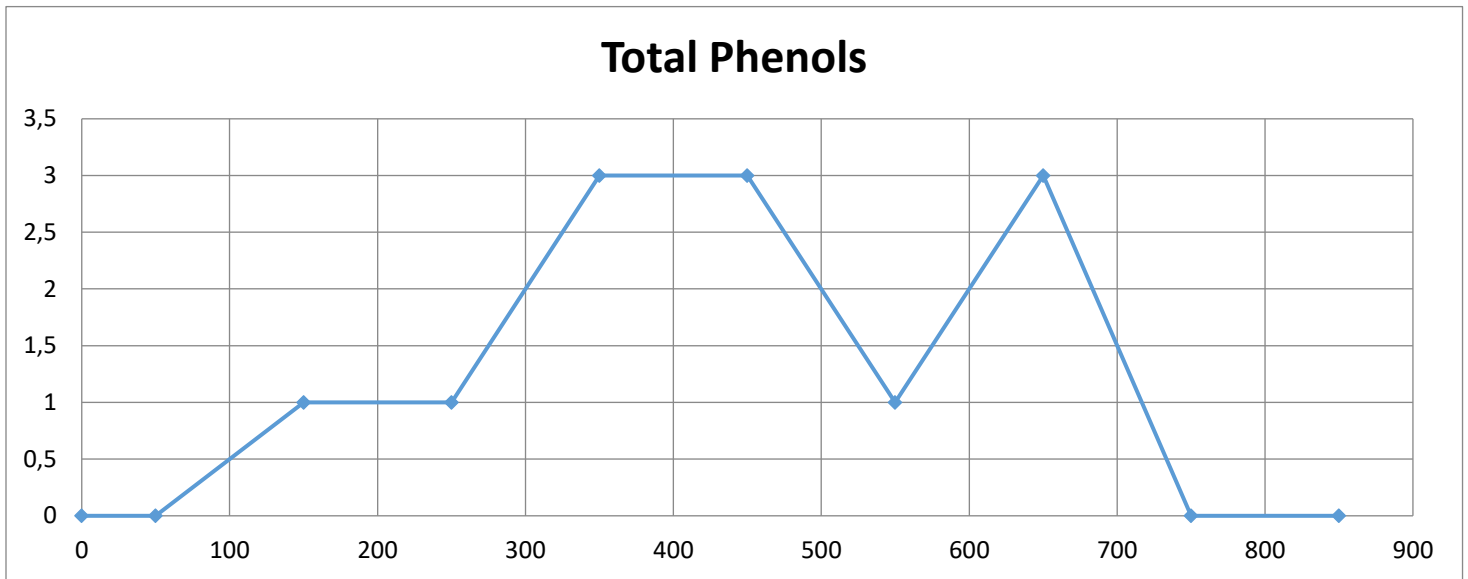
>1000mg/kg



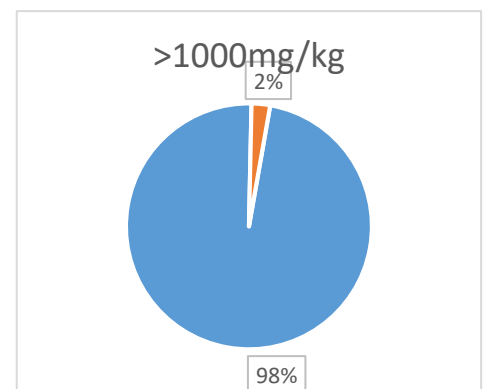
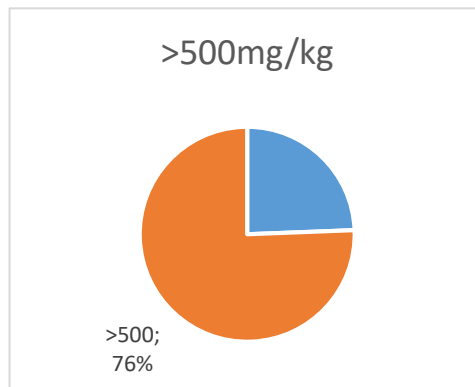
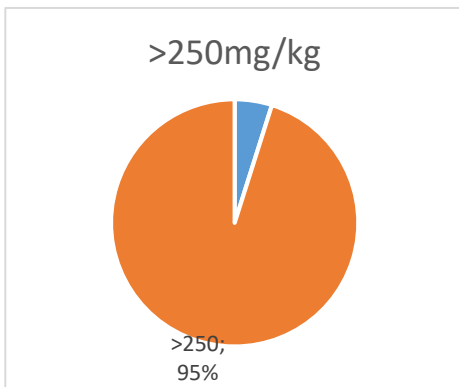
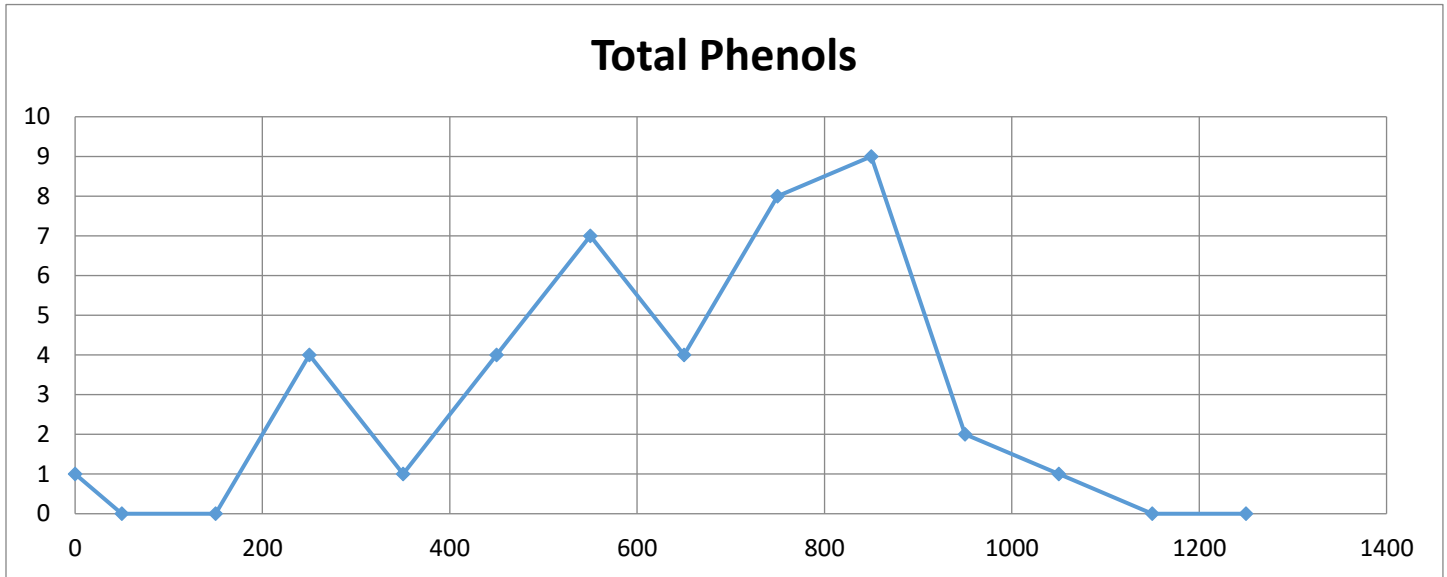
4%

96%

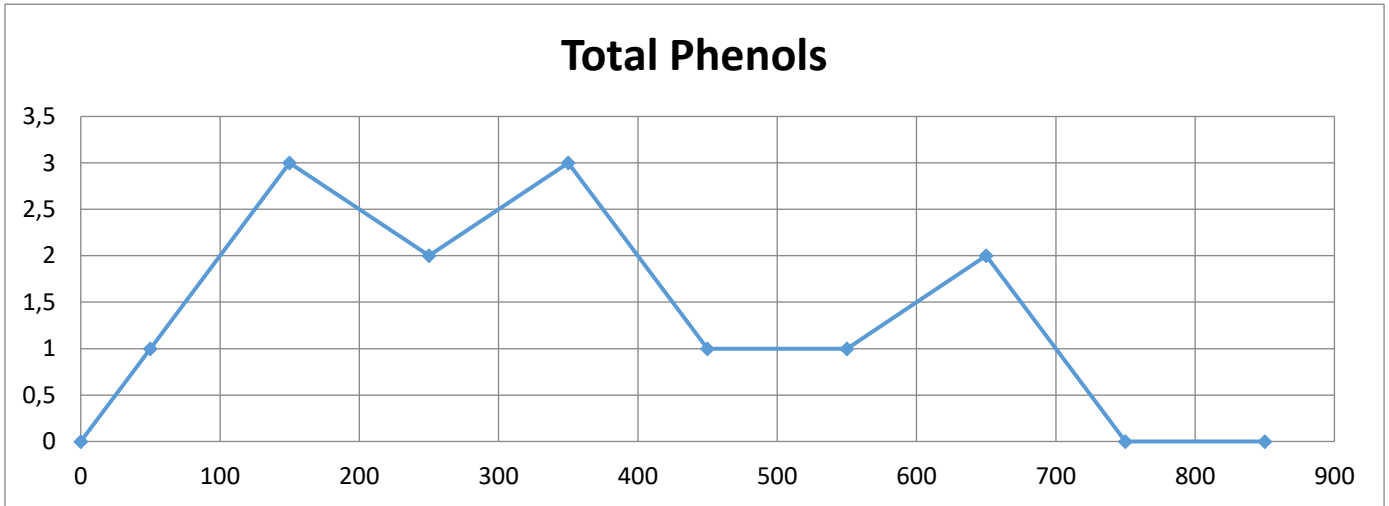
Regional unit of Kavala Av.=441 mg/kg



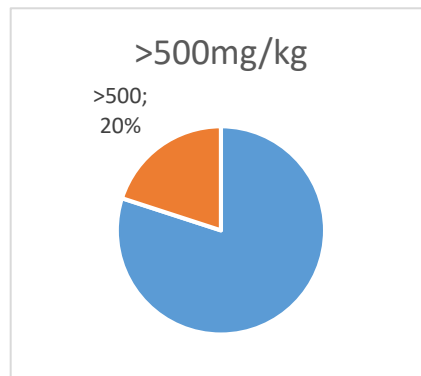
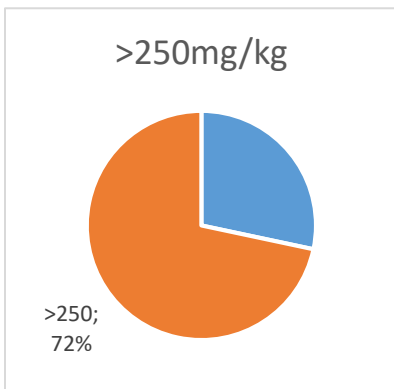
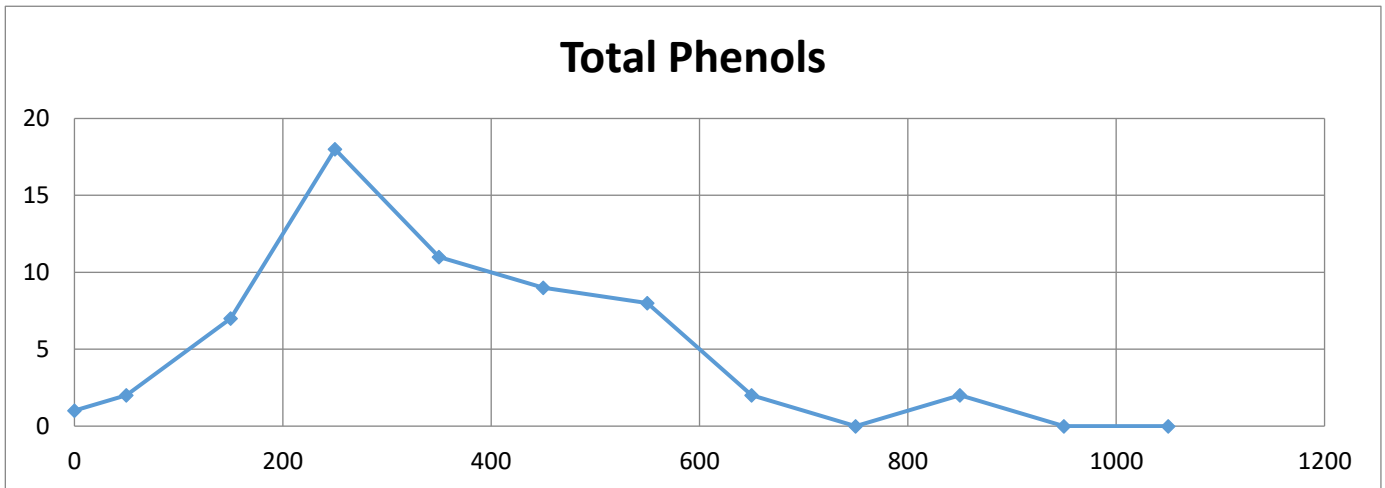
Regional unit of Kerkyra Av.=636mg/kg



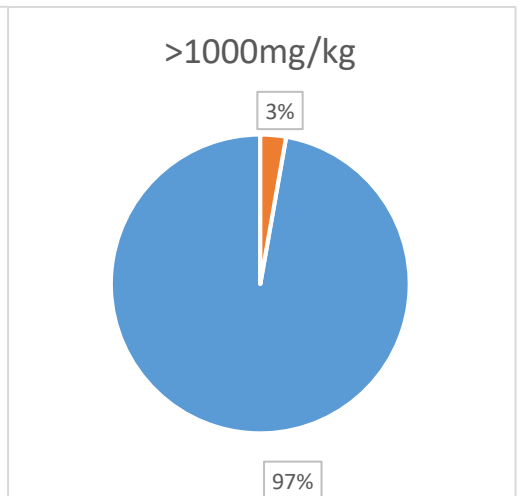
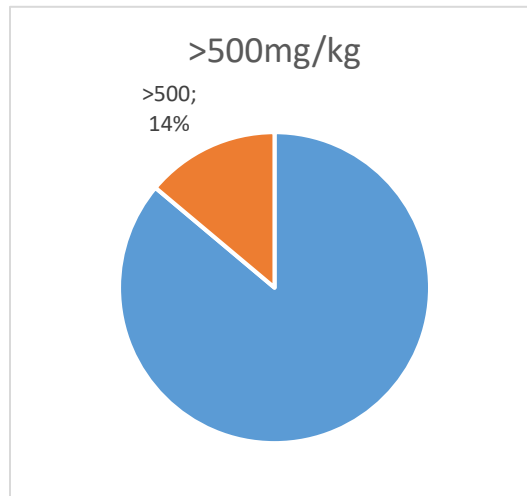
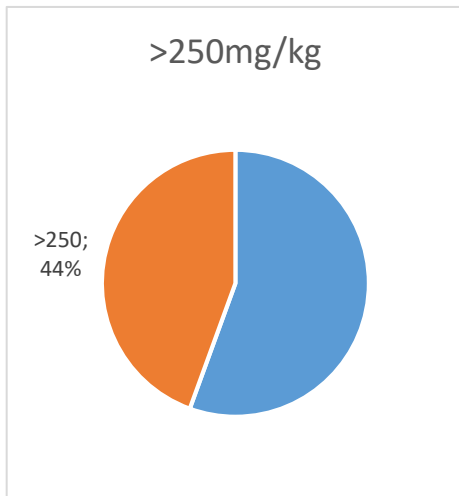
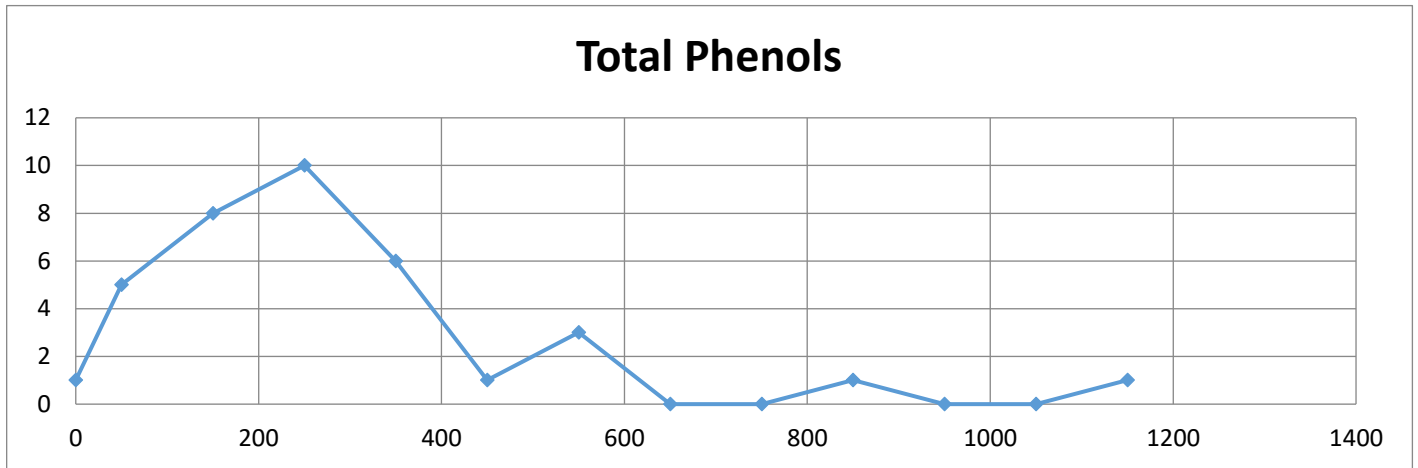
Regional unit of Cyclades Av.=335mg/kg



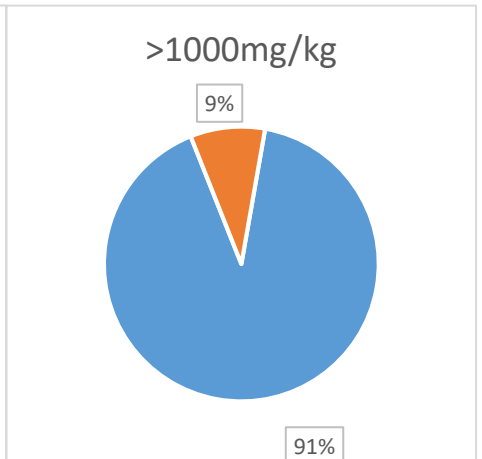
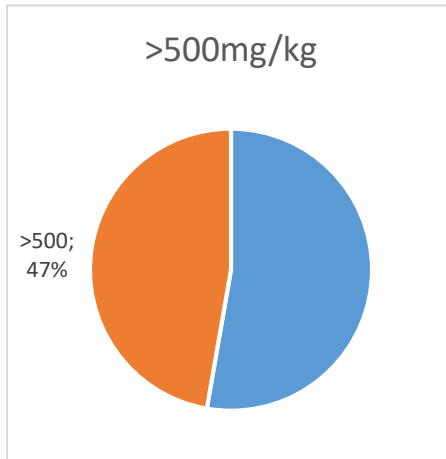
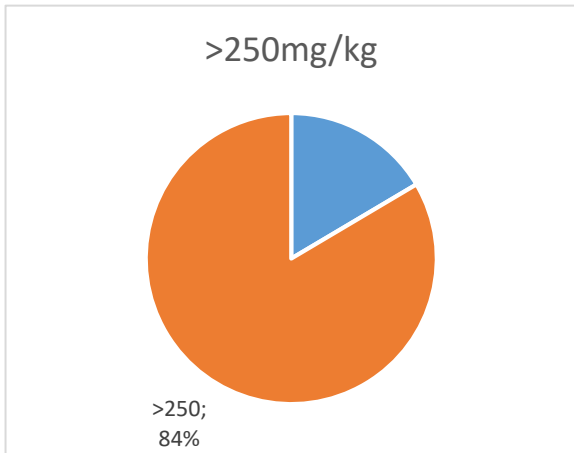
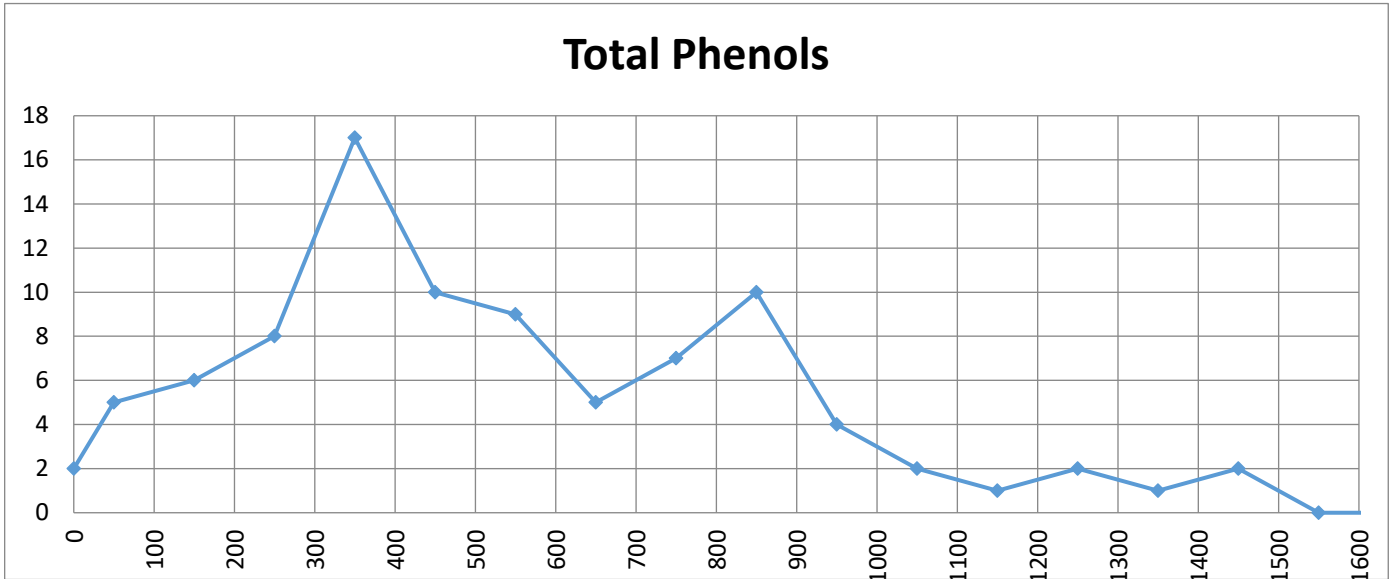
Regional unit of Lasithi Average.=347mg/kg



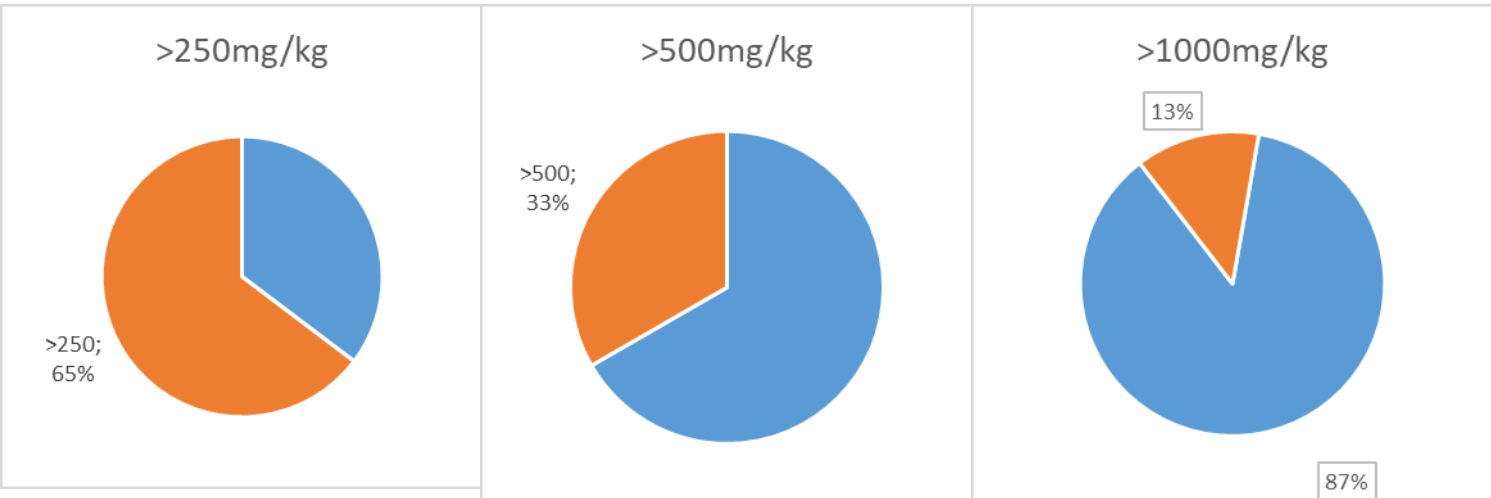
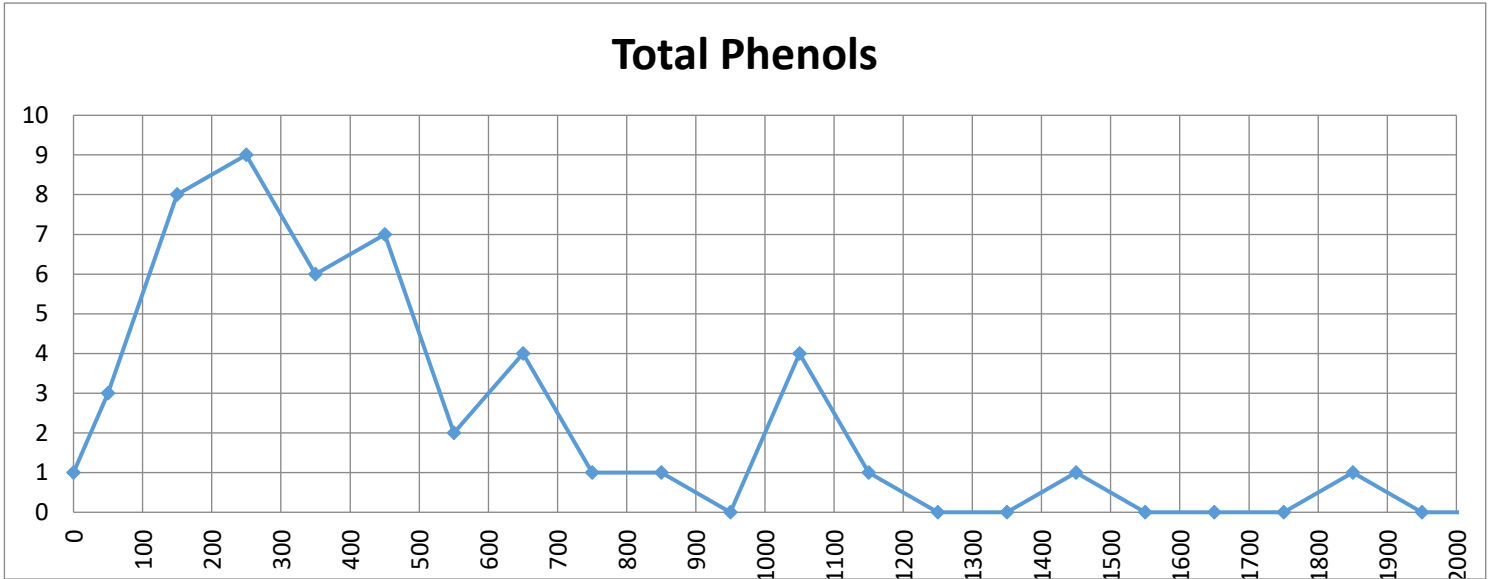
Regional unit of Magnesia $\bar{A}v=286\text{mg/kg}$



Regional unit of Chalkidiki Av=542mg/kg



Regional unit of Chania Av.=471mg/kg





Project co-financed by the European
Regional Development Fund

Results of olive oil analysis

Greece

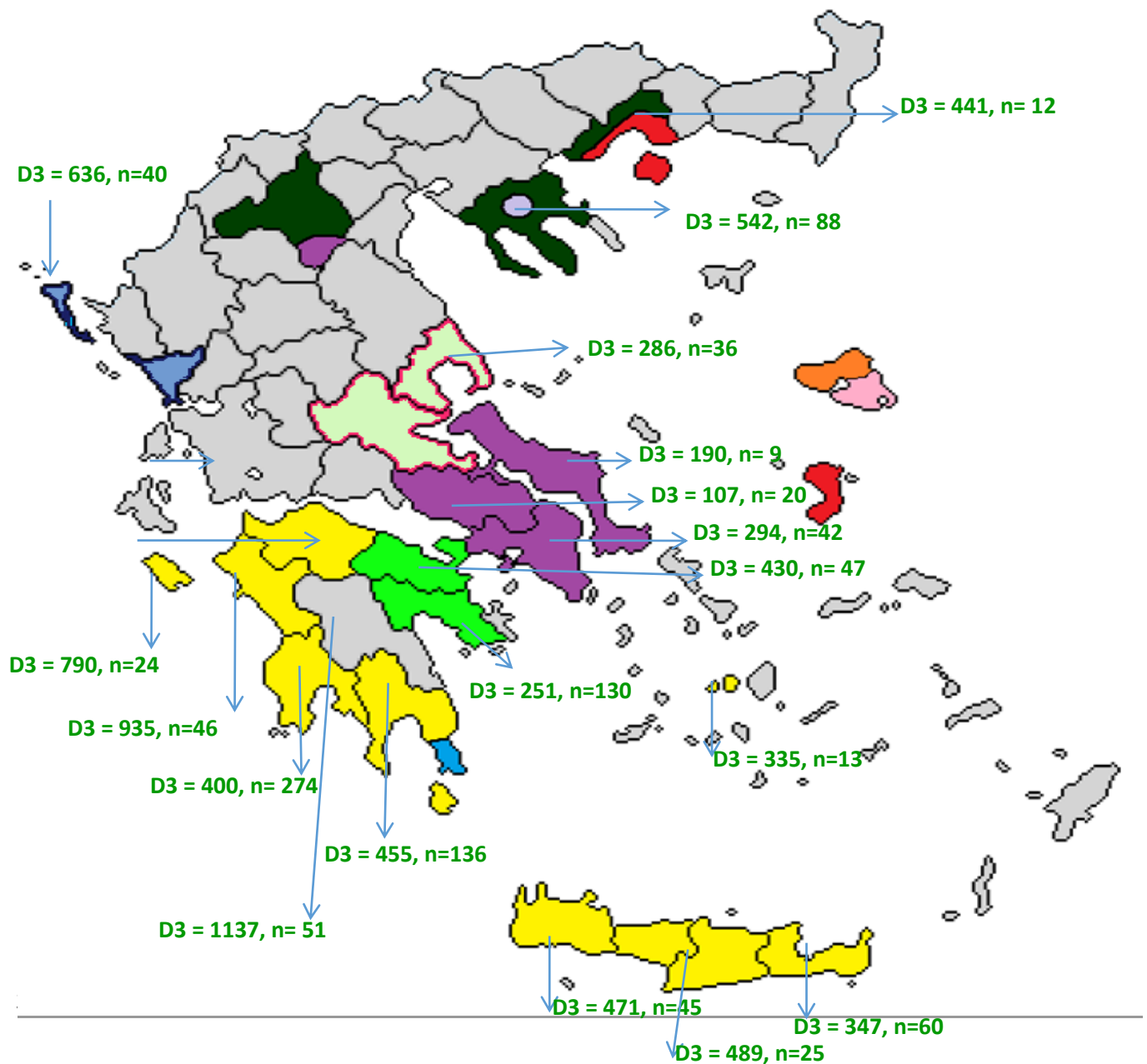
906/1266 achieved the health claim (71.6%)

331/1266 > 500 mg/Kg (26%)

86/1266 > 1000 mg/Kg (6.8%)

Average = 461 mg/Kg

The highest among all Greek samples: 3069 mg/Kg (Kalamata var)





Project co-financed by the European
Regional Development Fund

Cyprus

67/112 achieved the health claim (60%)

17/112 > 500 mg/Kg (15%)

Average = 316 mg/Kg

ATSAS: 3.762 mg/Kg oleocanthal (Kalamata var.)

The highest among all participating countries

Italy

274/502 achieved the health claim (55%)

72/502 > 500 mg/Kg (14%)

14/502 > 1000 mg/Kg (3%)

Average = 310 mg/Kg

The highest among all Italian samples: 1462 mg/Kg

Croatia

102/105 achieved the health claim (97%)

69/105 > 500 mg/Kg (66%)

8/105 > 1000 mg/Kg (8%)

Average = 655 mg/Kg

The highest among all Croatian samples: 2433 mg/Kg

SPAIN

COMPOUND	MINIMUM	MAXIMUM	AVERAGE	STANDARD DEVIATION
Hydroxytyrosol	0,0	28,7	3,5	3,4
Tyrosol	0,0	0,0	0,0	0,0
Oleacein	0,0	1329,1	328,2	279,7
Oleocanthal	0,0	392,0	75,6	60,5
OleuropeinAglyconIsomers	0,0	1980,5	356,7	245,1
LigstrosideAglyconIsomers	0,0	1780,4	229,1	204,5
Apigenina	0,0	13,1	1,5	1,1
Luteolina	0,0	11,8	2,4	1,7
Hidroxytyrosolderivatives	4,6	2185,8	688,4	382,0
Tyrosolderivatives	9,3	1821,0	304,8	208,5
TotalPhenoliccompounds*	38,7	3928,5	993,1	518,4
Totalanalyzedcompounds**	47,0	3931,5	997,1	518,0
Health claimconsumption	0,8	78,6	19,9	10,4

*According to the health claim

**Total content considering also flavonoids

Totalsamplesanalyzed	1020
Percentage of samples that fulfils the health claim	95,80%
Percentage of samples providing more than 10 mg of phenolic compounds by intake of 20 g olive oil	84,30%