ERASMUS PLUS PROGRAM

GEOPARKS - NATURAL AND CULTURAL HERITAGE THAT JOINS EUROPEAN STUDENTS AND TEACHERS

2018 – 2020 Dissemination – 2018 – 19

Results of National Poster Contest of Geoparks.

The competition was organized from Cyprus team of the European Program in association with Bank of Cyprus which sponsored our winning prizes and also Department of Geological Survey from the Ministry of Agriculture Rular Development and the Environment of the Republic of Cyprus and Geoparks of Troodos and Lesvos island in Greece and was first announced in the 8th Conference of Natural Sciences from the coordinator of Cyprus Team of the program Mr. Nikolas Nikolaou and in Annex 1 you can find the first announcement of the competition with all details, rules, prizes, dates of the accepting posters, evaluating posters and everything that was important for the competition.

In the competition took part more than 10 posters from 5 different schools of Cyprus and all posters passed from the Jury which where the following:

1. Dr Efthimios Tsiolakis from Department of Geological Survey, Ministry of Agriculture, Rural Development and Environment of the Republic of Cyprus
2. Dr Antigoni Polyniki from Cyprus National Commission of UNESCO
3. Mr Petros Xatjikostas from Troodos Geopark and Development Company of the Troodos Region (AN.E.T.)

With the evaluation of the posters we had the winning teams and schools of the competition and the prizes were given in a simple ceremony during the 2nd day of the 2nd Global Conference of Greece and Cyprus Geoparks of Unesco on Friday 17th of May to the Ministry of Economics in Nicosia. The three winning posters were:

1st winning Poster: “Drinking Water of Natural Sources in Geopark of Troodos and their connection with our health” with the students Rafaelia Koumoydiou and Adelina Papapetrou from Lyceum Agios Ioannis Limassol

2nd Winning Poster: “Physical and Chemical properties of soil and how is associated with the vegetation (plantation) in an area”, with the students Kozakou Maria, Christou Maria and Kallinakis Alexandros from Lyceum Agios Ioannis Limassol

3rd winning poster: with the students Georgiou Anna and Petrou Fotini and their teacher Fotini Fotiou from Periferiako Gimnasio Kitiou in Larnaca.

In appendix A you can find the regulations of the National Poster Contest about Geoparks and on Appendix B the posters that won the 3 first prizes. In Appendix C you can find photos from the winning ceremony about the poster competition. All the students and teachers of the winning teams received books in Greek and English about the Cultural Heritage of National Cultural Monuments of Cyprus from our National Agency of UNESCO in Cyprus. Also winning schools received a book about the History of UNESCO in all over the world and the first winning school received a book for all Geoparks of Europe as you can see in the photos. All books that school received about Geoparks of UNESCO will be in the libraries of the schools. Also the students of all the winning teams will take place in an educational environmental trip for 3 days in Environmental Center of Pedoulas and students of the first winning place of the competition will receive a personal tablet for their personal use that were given from the Bank of Cyprus as it was our special sponsor for the competition.

Appendix A: Regulations of Cyprus National Contest for UNESCO Geoparks

Lyceum of Agios Ioannis – Limassol
Rinou 3061 Limassol– Cyprus
Telephone: 00357 25692131
Fax: 00357 25692135
E-Mail: lyk-ag-ioannis-lem@schools.ac.cy

http://www.geoparks.erasmusproject.eu/
email: geoparksofeurope@mail.com

ΜΕ ΤΗ ΣΥΝΕΡΓΑΣΙΑ

1st School National Competition of Posters about National Geoparks of UNESCO

Lyceum of Agios Ioannis from September 2018 is a partner in the Erasmus Plus Program with title: ***GEOPARKS - NATURAL AND CULTURAL HERITAGE THAT JOINS EUROPEAN STUDENTS AND TEACHERS, 2018-1-PL01-KA229-050575_*5**. The project carried out by students and teachers from Poland, Spain, France, Bulgaria, Hungary, Cyprus. It is an interdisciplinary project combining Biology, Geology, Geography, Environmental Science, Language, Arts. All partners will be involved in presenting one GEOPARK of their region. In many countries around the world, earth science education is lacking. More informations about the program you can find : http://www.geoparks.erasmusproject.eu/

Within this program, a Pancyprian School Poster Competition is held on the Geopark of Europe. The Competition is run by the Lyceum of Agios Ioannis in cooperation with the Bank of Cyprus, which also subsidizes the Awards of the Competition and the following Departments dealing with Natural Sciences and Geoparks:

1. Inspection of Physics, Chemistry and Biology of Secondary Education of the Ministry of Education and Culture of the Republic of Cyprus
2. Department of Geological Survey, Ministry of Agriculture, Rural Development and Environment of the Republic of Cyprus
3. Troodos Geopark and Development Company of the Troodos Region (AN.E.T.)
4. Department of Geography, University of the Aegean and Geopark of Lesvos, Greece

In this 1st announcement of the Competition there are the competition's rules, the poster's rating criteria, the important closing dates for the contest, and the awards for the highest ranked posters.

Regulations of the Geopark Poster Competition

In order for a poster to take part in the Contest, the following should be applied:

1. Students and groups of pupils (groups of students must not exceed 3 pupils) attending Public and Private Schools of Secondary and Technical Education have the right to participate.
2. Any group of pupils who will send a poster for the contest will only be coordinated by a teacher.
3. The subject of the poster should be relevant to the following individual subjects or to any subject related in any way:
    i. Geology and Geoparks
    ii. Geophysics
    iii. Geotechnology in Geoparks
    iv. Biodiversity and Geoparks
    v. Petrified Forests
    vi. Geoparks and History
    vii. Natural Environment and Geoparks
    viii. Geopark of Troodos
    ix. Geopark of Lesvos
    x. UNESCO Geoparks
    xi. Geoparks of Europe
    xii. Petrified Forest of Lesvos
    xiii. Geotourism on Geopark
    xiv. Geophysics

xv. Geo-environment
xvi. Geography and Geoparks
xvii. Earthquakes and Geoparks

4. The poster to be presented should have a scientific structure (only electronic poster structure) and through it to show the process and research done in the bibliography. The poster must be in dimension A1.
5. The pupils will present their posters to the competition jury in May in a venue that will be announced later by the organizers in the participating teams.
6. The jury will be composed of experts in Geopark and Natural Sciences that will represent the organizations co-organizing the Contest.
7. The posters will be presented and judged during the 2nd Global UNESCO Geopark of Greece and Cyprus Conference on May 17, 2019 in Nicosia in a space to be announced.

Important Dates of the Competition

1. Statement of participation in the competition: Until 20 April 2019, e-mail geoparksofeurope@mail.com marked "National Geopark Competition".
2. Participation form giving the reasoning behind the creation of the poster: By May 12, 2019, e-mail geoparksofeurope@mail.com (the form will be sent to the participants by sending their application)
3. Scientific poster in electronic format: May 14, 2019, to email geoparksofeurope@mail.com
4. Review by Jury: By Friday 17th of May at the Geopark Conference in Nicosia.

Rating Criteria for the poster by the Jury

The evaluation of the poster by the jury will be based on the following criteria:

1. Relevance to issues related to Geoparks: **Up to 10 points**
2. The posterity of the poster: **Up to 30 points**
3. Participation form with poster creation: **Up to 20 credits**
4. Bibliographic support of the poster: **Up to 10 points**
5. Participation of pupils in poster creation: **Up to 10 points**
6. Presentation of the poster by students: **Up to 20 points**

Total units: 100

Awards to the highest ranked teams

All groups of pupils who will take part and all coordinating teachers will receive a certificate of participation in the competition. The three highest ranked posters will be awarded, taking respectively the following awards:

1st Prize: The students and the coordinator of the poster who will receive the highest score will get from a tablet and will be able to participate in a three-day Environmental Trip at Pedoulas Environmental Centre at Troodos Geopark.

2nd Prize: The students and the coordinator of the poster will receive the 2nd highest score will receive a prize from a book on the UNESCO Geoparks and will be able to take part in a three-day Environmental Trip at Pedoulas Environmental Centre at Troodos Geopark.

3rd Prize: The students and the coordinator of the poster will receive the 3rd highest score will receive a prize from a book on the UNESCO Geoparks and will be able to take part in a three-day Environmental Trip at Pedoulas Environmental Centre at Troodos Geopark.

Communication

For any further clarifications and queries, you can contact the following program representatives:

Nikolas Nikolaou (Physicist, Lyceum of Agios Ioannis, Limassol): Coordinator of the Erasmus Plus program "Geoparks - Natural and Cultural Heritage that Joins European Students and Teachers"
Email: geoparksofeurope@gmail.com, nic_nicolaou@hotmail.com
Phone: 00357 99692097

Konstantina Theofylaktou (Geologist at the Visitors Department of the Troodos Geopark)
Email: kwnstantina044@gmail.com
Phone: 00357 99276312

Appendix B: Posters of the winning prizes

Drinking water in the natural sources of Troodos and Health

ERASMUS+
2014 - 2020 programme for Education, Training, Youth, and Sport

Students: Koumoudiou Rafaelia, Papapetrou Atelina

Summary

First of all, we chose this theme because we are taking part in the Erasmus program. The theme of this program is the Geopark. We wanted to answer the research questions about the Troodos' water and especially the water near the geopark of Troodos. We started with our experimental design (With base what we wanted to prove and to search). Then we had a debate with our teachers and with the chemicals at the State General Laboratory. There we've decided about our research questions. We wanted to do an research about the water's Chemical properties in relation to altimeter of the area of each source. Then we wanted to compare the water of Troodos' area with the water in Saint Johns' area or in Limassol's area. We followed our methodology and we ended up with some conclusions that we combined with our health. We want to emphasize that the water of Troodos is more suitable as drinking water and for our health than the drinking water of Limassol which is better for domestic use because it has a few salts.

Research Questions

1st research question: What are the different in physical and chemical properties between the drinking water in the natural sources of Troodos and the drinking water in Limassol?

2nd research question: How they change the physical and chemical properties with the different altitude of each source?

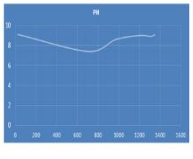
Water collection based on altitude

Chemical analyzes at the State General Laboratory

On February we went at the State General Laboratory. Here we saw the way of chemical analysis which it will be used for the waters that we took. When we took the results from the state general of laboratory we started with the export of conclusions.

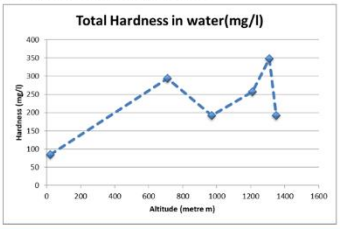
pH – acidity of water in Cyprus

The results about pH after the chemical analysis were around 9 for all the testers that we took. For our results we can say that the water of Limassol area and Troodos area are alkaline(basic) and they are appropriate for drinking



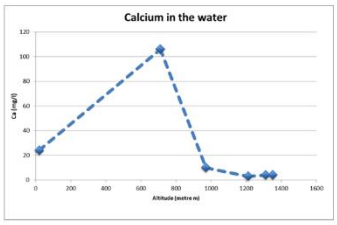
Total Hardness

Total hardness is determined by the multivalent cations' concentrations present in water. The most common cations present in hard water are Mg2 and Ca. Hard water is water that has high mineral content. A water is hard when it contains more than 75 kg of dissolved solids per liter.



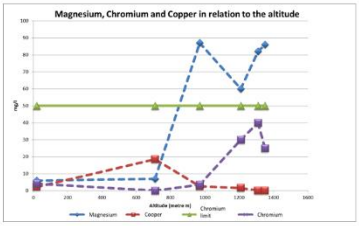
From the graph we can say that the hardness of the water increases as we go up in altitude making the water of Troodos hard enough and quite beneficial to our health. The water of Limassol is difficult to characterize hard water because it's in the limits of hardness and it's better for domestic use (it has a few salts).

Calcium in the water



We notice that the sources with higher altitude don't have a large amount of calcium in the water. This is due to calcareous rocks that they don't have the highest altitudes so they don't enrich the water with calcium. Unique exception is the water at the source of Agias Mavris. So, maybe the water of the source of Agias Mavris passes by calcareous rocks.

Magnesium, Chromium and Copper in relation to the altitude



We notice that the water has a lot of magnesium and chromium while we go up in altitude. Chromium in high altitude sources is close to the limit of the World Health Organization. For Copper, we do not notice significant differences, as can be seen from the concentration graph.

CONCLUSIONS

- All data reviewed in chemical measurements made from all sources are within the acceptable limits of the World Health Organization and on the Quality of Water of Human Consumption. Some of them in some sources were close to the limit but no one exceeded the acceptable limits.
- Water from the source of Agia Mavri is rich in calcium and suitable for people who are deficient in calcium or suffer from osteoporosis.
- As we go up in altitude, the water is rich of the sources of magnesium and chromium, trace minerals that are important to our health and are more suitable for people with chronic problems such as osteoporosis (magnesium) and diabetes (chromium with insulin contributes to maintaining low levels of sugar)
- Water from all sources in Cyprus is alkaline, has pH close to 9, which is characterized as the ideal water for people who follow an alkaline diet.
- Limassol water can be described as moderate hardness water. The water from all the sources of the Troodos Geopark is hard. So in relation to health, water from the sources of the Troodos Geopark contains significant amounts of Mg that are beneficial to our health.

Bibliography

Κασίδης Α. (2011). Μέθοδοι ενόργανης ανάλυσης, Πτυχιακή εργασία, Τμήμα Τεχνολογίας Τροφίμων Γεωργικών Προϊόντων, Σχολή Γεωπονίας Τεχνολογίας, ΑΤΕΙ Καλαμάτας, Ελλάδα.

Bollag, D. M. (1994). Ion-exchange chromatography. In Peptide Analysis Protocols (11-22). Humana Press. Σημειώσεις που μας δόθηκαν στο Γενικό Χημείο

Giri, L. (1990). Chromatofocusing. Methods in enzymology, 182, 380-392. Σημειώσεις που μας δόθηκαν στο Γενικό Χημείο

Χρωματογραφία ιοντοανταλλαγής (2019). Το αρχείο ανακτήθηκε από την ιστοσελίδα: https://repository.kallipos.gr/bitstream/11419/2581/1/02_chapter_04.pdf

Ιοντική χρωματογραφία (2019). Το αρχείο ανακτήθηκε από την ιστοσελίδα: https://eclass.uoa.gr/modules/document/file.php/CHEM165/04-SAT_Ion%20Chromatography.pdf

Physical and Chemical Properties of the Earth and how it is associated with the vegetation of an area

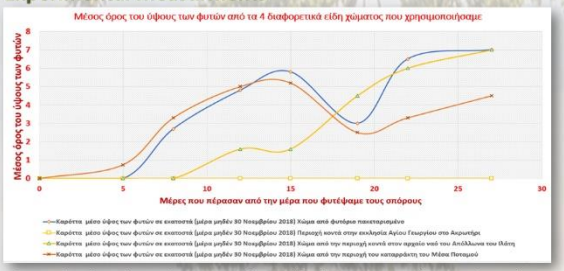
Summary

In our research we worked with the physical and chemical properties of the subsoil and we try to conclude into some general conclusions inside of a well-designed scientific methodology which we present them in this poster. Specifically, we collect soil from three different areas in Cyprus (specifically we choose the areas because of the different diversity of the subsoil) and with the packed soil that we bought from the market (plaint test for comparison) we tried to see how the subsoil affect the growth of 2 different plants.

Research Questions

1. How does the soil of a region affect the growth of plants?
2. If there are some differences in the soil and in the subsoil of the area of Troodos Geopark and if these there are any differences are these differences able to affect the plant's growth and generally their characteristics while they are growing.

Experimental Measurments

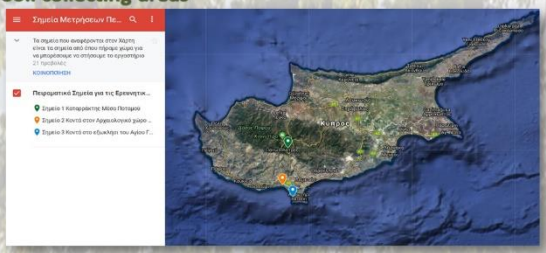


Through the chart it seems that all plants started growing after the fifth day except of those from the area near the temple of Apollona Ilati in Kourion area, where the plants delayed three days. In the contrary the plants with the soil from Akrotiri area were not growing, since the soil in this area has poor corrosion, low strength and it gets easily deformed. As a result, the plants cannot growth without the nutrients and the absorption of the water. The plants from the other areas prospered properly. The soil from the nursery and from the temple of Apollana Ilati had caused the highest growth to the plants which have approximately the same height. This kinds of soil are well-graded and the thin grains penetrated better to the bigger grains gaps. Due to this all our plants can have a satisfying height. So by this , this kinds of soil are well-graded and the thin grains penetrated better to the bigger grains gaps.

Granulometric Analysis – Physical Soil Properties

Because our results in chemical analyzes was approximately the same for all our different kinds of soil, we wondered why the plants with the soil of Akrotiri didn't had any growth? To answer that we needed to see the physical properties of the soil and we passed all the kinds of soil through granulometric analyze which help us to find some conclusions for the physical characteristics of each soil. So we study the different results of each soil in a relation with the size of granules and with the prices that we have we made the granulometric curves for each different type of soil as we see in the graph of Granulometric curves.

Soil collecting areas

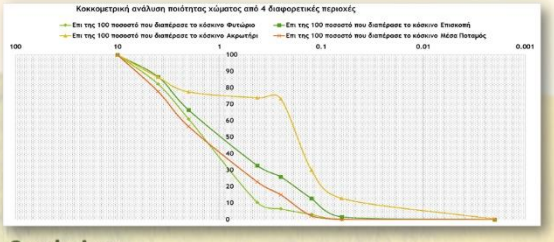


1. Troodos Geopark area (River of Mesa Potamos near the water falls)
2. Ancient Temple of Apollonas Ilatis in kourio area in Limassol
3. Akrotiri area near Limassol
4. from the planetarium too

Staging of the experiment layout

Chemical Analysis – Chemical Soil Properties

We made chemical analysis that showed how much acid had all the kind of soils and also how many nutrients they were contained in the different kind of soils. Through our results we noticed that all areas were rich in potassium and phosphorus and that their acidity was similar.
Since we couldn't answer our second research question with chemical analyzes, we decided to deal further with the physical properties of the soil.



Conclusions

Through the curves of the granulometric analysis, we saw that the soil from the area near the temple of Apollona Ilati, the phytosanitary and the River Middle in Troodos as it appears from the curve is well graded. This means that the fine granules penetrate better in the voids among the larger granules and by this the soil is durable and it shows corrosion .In addition, it can concentrated better and it can to absorb all the water and the nutrients. This makes them more cultivated. On the contrary, the curve of the soil in Akrotiri Area has a poor gradient, since there is a large diameter which presents large gaps. Thus, it has less strength and is easily deformed. Moreover, it cannot absorb all the water and the nutrients. In this kind of soil almost none kind of vegetation can grow except the bushes.

ERASMUS+
2014 - 2020 programme for Education, Training, Youth, and Sport

Students: Maria Kozakou , Maria Christou, Alexandros Kallinakis

Κρασοχώρια Τροόδους: Προστασία και εμπλουτισμός

Στις μέρες μας, τα επαγγέλματα του πρωτογενή τομέα κινδυνεύουν να εξαλειφθούν. Ενα απο αυτά είναι και η παραγωγή κρασιού το οποίο θεωρείται αρχαίο επάγγελμα. Η έρευνα μας αφορά τα κρασοχώρια της Κύπρου στις παρυφές του Τροόδους, την προστασία και τον εμπλουτισμό τους.

Απο τα παλιά χρόνια η Λεμεσός ήταν το κέντρο παραγωγής κρασιού στην Κύπρο. Τα κρασοχώρια της Λεμεσού όπως για παράδειγμα η Ερήμη, Καντού, Άγιος Αμβρόσιος, Βουνί, Πλάτρες, Όμοδος, Άρσος βρίσκονται στις νότιες πλαγιές της οροσειράς του Τροόδους (Χάρτης 1). Η γεωλογία των περιοχών συμπεριλαμβάνει ενα πρωτοφανές σύμπλεγμα οφιολιθικού εδάφους που σχηματίστηκε πριν 90 εκατομμύρια χρόνια και αναδύθηκε 8,000 μέτρα απο τον βυθό της θάλασσας (Εικόνα 1). Το υψόμετρο των περιοχών φθάνει μέχρι 1,100 μέτρα. Τα εδάφη είναι κυρίως αβαθή αλλά χαλκώδη με μεγάλες και ομαλές κλίσεις. Τα κρασοχώρια είναι πλούσια σε χλωρίδα και πανίδα. Μερικά απο τα δέντρα και θάμνους είναι η μαύρη πεύκη, ο κέδρος και ενδημικά είδη πανίδας ειναι το αγριοκάτσικο και η αλεπού (Εικόνα 2-5).

Χάρτης 1

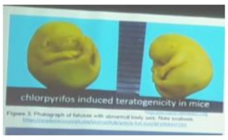
Εικόνα 1

Εικόνα 2

Εικόνα 3

Εικόνα 4

Εικόνα 5



Εικόνα 6

Συνεντεύξεις

Συνέντευξη με τον κύριο Γιώργο Ηροδότου (ιδιοκτήτη του Οινοποιείου Linos στο Όμοδος)

Ο κύριο Γιώργος δήλωσε οτι τα οινοποιεία είναι ασύμφορα διότι ΔΕΝ τα αρδεύουν αλλά εξαρτόνται απο το βρόχινο νερό. Μόνο σε χρονιές οπως φέτος που είχαμε πολυομβρία τοτε μπορούμε να έχουν παραγωγή. Τα κρασιά απο το οινοποιείο του ΔΕΝ είναι βιολογικής καλλιέργειας. Για την προστασία των αμπελώνων απο διάφορα έντομα και ασθένειες δήλωσε οτι χρησιμοποιούνται φυτοφάρμακα και λίπασμα, π.χ σε υγρή μορφή ή σε σκόνη θειάφι. Επίσης οταν γίνεται μηχανική καλλιέργεια κάνουν και αεροψεκασμούς. Οσο αφορά επιχορήγηση, υπάρχει οικονομική στήριξη απο τον ΚΟΑΠ, 36 ευρώ ανα δεκάριο αν η καλλιέργεια γίνει μχηνανική χωρις ψεκασμούς τότε εισπράττουν 50 ευρώ ανα δεκάριο.

Συνέντευξη με τον κο. Αντώνη Νικολάου (Γενικό Γεωπόνο)

Ο κύριος Αντώνης δήλωσε οτι για τις αμπελοκαλλιέργειες εφαρμόζονται τρεις κατηγορίες φυτοφαρμάκων: τα εντομοκτόνα, μυκητοκτόνα και τα ακαρεοκτόνα. Τα εντομοκτόνα καταπολεμούν διάφορα έντομα, τα μυκητοκτόνα καταπολεμούν μυκητολογικές ασθένειες και τα ακαρεοκτόνα/ οργανοφωσφορικά είναι για τα ακάρεα μια άλλη κατηγορία εντόμων (αραχνοειδή). Οι κυριότεροι εχθροί των αμπελώνων είναι η ευδεμίδα, ο περονόσπορος και η στάχτη. Κατα την άποψη του κύριο Αντώνη τα φυτοφάρμακα εαν χρησιμοποιηθούν σωστά τοτε είναι ασφαλή εχουν κάποια μικρή επιβάρυνση ομως τα φυτά εχουν μια ικανότητα να επεξεργάζονται τα φυτοφάρμακα και σε κάποιο χρονικό διάστημα τα διασπούν κα τα καθιστούν ακίνδυνα.

Συνέντευξη με τον κύριο Βρυώνη Ναπολέοντος

Ο κύριος Βρυώνης είναι κάτοικος Σαλαμιού, γραμματέας στο κοινοτικό Συμβούλιο και ερασιτέχνης αμπελουργός. Ενα απο τα κυριότερα προβλήματα των αμπελώνων της περιοχής του Διάριζου (π.χ περιοχές Κούκλια, Σαλαμιού) είναι η ανεξέλεκτη υπερβόσκηση. Η μόνη λύση για το πρόβλημα είναι να επαναφέρουν την νομοθεσία του Αγροφύλακα. Ένα άλλο πρόβλημα είναι οτι οι επιχορηγήσεις μειώνονται ανα χρόνο. Δεν υπάρχει τεχνητή άρδευση διότι αν ποτίσουν το αμπέλι υπερβολικά τότε το σταφύλι θα είναι νερωτό και δεν θα εχει καλή ποιότητα. Ο κύριος Βρυώνης εξέφρασε και την ανησυχία του οτι δεν υπάρχουν σταθερές τιμές οσο αφορά την πώληση του σταφυλιού και πλέον υπάρχει αρκετός ανταγωνισμός με τις ίδιες ποικιλίες ετσι μειώνεται η τιμή πώλησης και το κέρδος. Το κρασί απο τον αμπελώνα του παράγεται απο βιολογική καλλιέργεια και ο ψεκασμός είναι μονο θειάφι.

«Αειφόρα» κρασιά και συμπεράσματα

Η παραγωγή κρασιού απο βιολογική καλλιέργεια αυξάνεται σταθερά τα τελευταία χρόνια. Το «αειφόρο» κρασί παράγεται απο σταφύλια που έχουν αναπτυχθεί χωρίς την χρήση συνθετικών χημικών ουσιών π.χ ζιζανιοκτόνα. Σύμφωνα με τους κανονισμούς της Ευρωπαϊκής Ένωσης, η βιολογική καλλιέργεια δεν εχει περιορισμούς που βασίζονται στην περιβαλλοντική βιωσιμότητα (χρήση νερού και οργανικών παρασιτοκτόνων). Επίσης, η Ε.Ε εχει πιο επιεικείς περιορισμούς για την προσθήκη θείου. Με τις τόσες απειλές που αντιμετωπίζει η ανθρώπινη υγεία και το φυσικό περιβάλλον μας οφείλουμε να απογορεύσουμε τελείως την χρήση χημικών φυτοφαρμακών και να παράγουμε κρασί μονο απο βιολογική καλλιέργεια. Συνεργαζόμαστε ολοι μας για να πετύχουμε αειφόρα κρασοχώρια στις παρυφές του Τροόδους για το καλό το δικό μας και των επόμενων γενεών.

Σοβαροί κίνδυνοι

- Το θειάφι σε μορφή σκόνης αν και θεωρείται βιολογικό μυκητοκτόνο μπορεί όμως να κάψει τα αμπέλια σε ψηλές θερμοκρασίες.
- Οι επιστήμονες υποστηρίζουν οτι τα εντομοκτόνα και οργανοφωσφορικά μπορούν να προκαλέσουν τερατογένεση (Εικόνα 6). Σύμφωνα με επιδημιολογική έρευνα στην Αίγυπτο 50% των αγροτών που χρησιμοποιούν οργανοφωσφορικά υποφέρουν με νευρολογικά προβλήματα.
- Οργανοφωσφορικά εντομοκτόνα με ακαρεοκτόνες ιδιότητες, φαίνεται να προκαλούν σοβαρή ζημιά στον εγκέφαλο και οι ασθενείς παρουσιάζουν συμπτώματα άνοιας και την νόσο Αλζχάιμερ.
- Απο 30 επιδημιολογικές έρευνες και πειράματα σε ζώα, έκθεση εγκύων σε χαμηλά επίπεδα οργανοφωσφορικών γεννούν παιδιά με χαμηλό IQ και με μαθησιακές δυσκολίες.

Μαθητική ομάδα: Άννα Γεωργίου, Φωτεινή Πέτρου

Τμήμα: Α΄2

Σχολική χρονιά: 2018-2019

Σχολείο: Περιφερειακό Γυμνάσιο Κιτίου, Λάρνακα

Υπεύθυνη καθηγήτρια: Φωτεινή Φωτίου (Γεωγραφία)

Πηγές

Περιοδικό «Αγρότης»

Γιώργος Κύρρης,« Σύστημα Ελέγχου και Σήμανσης Βιολογικών Προϊόντων». Τμήμα Γεωργίας

Appendix C: Photos of the Winning Ceremony

Prizes



3rd Prize



2nd Prize








1st Prize