

Research from Cypriot participants of the youth exchange KA152YOU: PLAN to PLANT GREEN PLAN TO PLANT (GREPLA-PLA)

Summary of Research in Environmental Sustainability

Research Focus: The study is centered around three main themes related to environmental sustainability, specifically in the context of Cyprus. The themes are: (a) sustainable cooking using wild vegetables, (b) the impact of climate change and global warming, and (c) sustainable practices and habits for a sustainable future.

(a) Sustainable Cooking and Wild Vegetables in Cyprus The research explores the use of indigenous wild vegetables in traditional Cypriot cooking. By utilizing local flora, the study aims to promote sustainable food practices that reduce reliance on imported goods and decrease the carbon footprint associated with food transportation. The findings suggest that incorporating wild vegetables not only preserves local biodiversity but also enhances nutritional value and supports cultural heritage. Practical recommendations include increasing awareness about edible wild plants and integrating them into daily diets and culinary traditions.

(b) Climate Change and Effects of Global Warming in Cyprus This section examines the specific impacts of climate change on Cyprus, emphasizing the rising temperatures, altered precipitation patterns, and increased frequency of extreme weather events. The research highlights how these changes threaten local ecosystems, agriculture, and water resources. The study advocates for comprehensive climate adaptation strategies, such as improved water management practices, drought-resistant crop varieties, and enhanced infrastructure to withstand extreme weather. Additionally, it calls for stronger policy measures to reduce greenhouse gas emissions at both local and national levels.

(c) Sustainable Methods and Habits for a Sustainable World The final theme addresses practical methods and everyday habits that individuals and communities can adopt to contribute to a more sustainable world. Key suggestions include reducing energy consumption through energy-efficient appliances, promoting recycling and waste reduction, encouraging the use of public transportation, and supporting renewable energy sources. The research underscores the importance of education and awareness in driving behavioral change and fostering a culture of sustainability. By adopting these practices, the study argues that significant progress can be made towards mitigating environmental degradation and promoting a sustainable future.

Conclusion

The research provides a comprehensive analysis of sustainable practices specific to Cyprus, offering valuable insights and practical recommendations. By focusing on local culinary traditions, the direct impacts of climate change, and everyday sustainable habits, the study contributes to a broader understanding of how localized efforts can collectively address global environmental challenges.

Sustainable Cooking and Wild Vegetables in Cyprus

In this we tried to find as much as we could wild vegetables that we can use in cooking in Cyprus

WILD VEGETABLES(CYPRUS)

ARTICHOKES:

Cypriot cuisine is characterized by special flavors and aromas that are enriched and enhanced by ingredients generously provided by Cypriot nature. Artichokes (*Cynara scolymus*) are herbaceous plants whose fleshy part of the stems is widely used in Cypriot cooking. However, in addition to the cultivated artichoke, some species of wild artichokes are also found in Cypriot nature, the wild artichoke (*Cynara cornigera*), the well-known hostas (*Cynara cardunculus*) and the new species *Cynara makrisii*, species which are an integral part of the culinary heritage of our country.



These three species belong to the genus *Cynara* which includes 11 species, 3 of which are found in Cyprus. The genus is characterized by perennial herbaceous plants that resemble thistle. Specifically, in the genus there are plants that can reach a height of up to 1.5 meters with curved, deeply variegated and spiky leaves of a bright green color. The flowers grow in conical heads at the end of an erect branching stem in the center of the plant while surrounded by bracts which may be spiny.



In Cyprus, wild artichoke is characterized by the species *Cynara cornigera* which, although it looks like the well-known artichoke, has smaller and more spiny leaves that spread to the ground, the heads are much smaller and the flowers are white or very pale pink in color. In addition, the flowering stem exhibits highly pointed modified leaves that resemble horns, a feature that seems to have given the name *cornigera* to the species from the Latin *cornu*

meaning horn. The species is characterized as native in Cyprus with a wide spread almost throughout the island, in stony areas with mainly bushy vegetation and at an altitude of up to 300 meters. The wild artichoke can be eaten raw, boiled with various legumes or even fried, while in various island regions of Greece the heads are more often placed in brine and less often in vinegar.

The well-known hostas with the Latin name *Cynara cardunculus* can reach a height of up to 1 meter and more than one flower head can be seen in branches on one stem. The grey-green leaves are highly lobed with yellow spiny endings and white fluff on their lower surface. The flower heads show the equal length, tubular flowers of blue-purple color and bloom from April to June. In Cyprus the spread is limited to the central and northern parts of the island at altitudes of up to 300 meters mainly in uncultivated and stony soils, roadsides and fields.

Since 1997, near the abandoned village of Vretsia in Paphos, a new species of wild artichoke has been identified by Christodoulos Makris. Initially this species was wrongly considered as *Cynara cardunculus* it presented several morphological differences with the said species and for this reason further analysis of these individuals was needed.



Thus, after a thorough study of the plant, remarkable similarities and differences with all known species of the genus *Cynara* were observed, resulting in the proposed designation of the plant in question as a new species, *Cynara makrisii*. Artichokes are generally characterized as an excellent food since they contain 84% water, 3% proteins, 11% carbohydrates and less than 1% fatty acids, while they are a rich source of calcium and many vitamins such as A, B1, and C. In addition to their nutritional value, artichokes also have special medicinal properties as liver detoxifiers, against jaundice and indigestion, while they have been used as diuretics, against anemia, diabetes and various skin problems.

Of the 3 species that are found in Cyprus, the species that needs special attention is *Cynara makrisii* and this is because so far the plant has only been identified in one place in Cyprus. It is important to intensify studies and efforts to protect and preserve this plant and to protect the natural habitats of all native plants in Cyprus. We can;

Sources: <https://kykpee.org/the-wild-artichokes-of-cyprus/>

Wild Asparagus



culinary traditions.

Nutritional Profile

Wild asparagus is low in calories but high in vitamins and minerals, particularly vitamins A, C, and K, as well as folate and potassium. It is also a good source of dietary fiber and antioxidants, which support overall health and well-being.

Source: <https://www.intercollege.ac.cy/wild-asparagus/>

Cypriot Wild Asparagus: A Delicate and Nutritious Superfood

Cypriot wild asparagus is a delicate and nutritious superfood that has been celebrated for its unique taste and health benefits in Cyprus for generations. These tender, slender stalks not only bring a subtle and earthy flavor to various dishes but also provide numerous health benefits, making them a key component of a balanced and healthful diet.

Cypriot Wild Asparagus: A Rich Heritage

Wild asparagus has a long history in Cyprus, where it grows naturally in the island's diverse landscapes, from coastal areas to mountainous regions. The island's Mediterranean climate allows wild asparagus to flourish, resulting in stalks that are celebrated for their high quality and distinctive flavor. Today, Cypriot foragers continue to gather wild asparagus using traditional methods, preserving the island's rich



CAPER (Kappari)

Cypriot Capers: A Flavorful and Nutritious Superfood: Cypriot capers are a flavorful and nutritious superfood that has been celebrated for their unique taste and health benefits in Cyprus for centuries. These small, pickled flower buds not only add a tangy, salty burst of flavor to various dishes but also provide numerous health benefits, making them a key component of a balanced and healthful diet.



Cypriot Capers: A Rich Heritage: Capers have a long history in Cyprus, where they grow naturally in the island's rocky and arid landscapes. The island's Mediterranean climate allows caper plants to thrive, resulting in buds that are celebrated for their high quality and distinctive flavor. Today, Cypriot farmers continue to cultivate and harvest capers using traditional methods, preserving the island's rich agricultural traditions.

Nutritional Profile: Capers are low in calories but high in vitamins and minerals, particularly vitamin K, vitamin A, and niacin. They also contain a range of antioxidants, such as rutin and quercetin, which support overall health and well-being.

The prickly caper is a perennial plant that bears rounded, fleshy leaves and large white to pinkish-white flowers. The plant is known for its edible flowering buds, which are often used as a condiment, and the fruits, both of which are commonly eaten pickled. The wild caper, the young shoots of the caper are placed in vinegar and eaten in the salad.



Source: <https://www.intercollege.ac.cy/caper-cypriot/>

Carob

Carob: A Nutritious and Flavorful Cypriot Superfood: Carob, a legume native to the Mediterranean region, has long been a staple in Cypriot cuisine and is recognized as a superfood. Known for its sweet, chocolate-like flavor, carob is a versatile ingredient that provides numerous health benefits. It is a key component of the Mediterranean diet and is celebrated for its cultural and historical significance in Cyprus.



Carob: A Cypriot Delicacy with Ancient Roots: Carob has been cultivated in Cyprus since ancient times, where it has been valued for its nutritional properties and unique flavor. The carob tree (*Ceratonia siliqua*) is an evergreen plant that thrives in the Mediterranean climate, producing edible pods that contain sweet, nutritious pulp and seeds.

Nutritional Profile: Carob is rich in fiber, calcium, and antioxidants, making it a valuable addition to a balanced diet. It is also a good source of vitamins and minerals, such as vitamin A, B vitamins, and minerals like magnesium, potassium, and iron. Carob is naturally low in fat and sugar, making it a healthier alternative to chocolate in various recipes.

Source:

<https://www.intercollege.ac.cy/carob-cypriot/>



Louvana (Yellow Split Peas)

Louvana (Yellow Split Peas): A Nutritious and Delicious Cypriot Superfood

Louvana, or yellow split peas, are an integral part of Cypriot cuisine and a valuable superfood that offers a range of health benefits. These versatile legumes not only contribute to the island's culinary traditions but also provide essential nutrients, making them a staple of the Mediterranean diet.



Louvana: A Key Ingredient in Cypriot Cuisine

Louvana, a type of dried, hulled, and split yellow pea, is celebrated for its mild, slightly sweet flavor and smooth texture. Its versatility in various cooking methods, including boiling, mashing, and simmering, has made it a key ingredient in many traditional Cypriot dishes.

Nutritional Profile

Louvana is a rich source of plant-based protein, complex carbohydrates, and dietary fiber. It also provides essential vitamins and minerals, such as B vitamins, iron, and magnesium. These nutrients make louvana a valuable addition to a balanced diet, particularly for those following vegetarian or vegan lifestyles.

Source: <https://www.intercollege.ac.cy/louvana-yellow-split-peas/>

Kolokasi (Taro Root): A Starch-Loaded and Flavorful Cypriot Superfood

Kolokasi, or taro root, is a nutritious and delicious superfood that plays a significant role in Cypriot cuisine. This starchy root vegetable, with its distinct nutty flavor, is not only a staple ingredient in various traditional dishes but also offers numerous health benefits, making it a valuable addition to a well-balanced diet.



Kolokasi: A Cypriot Culinary Staple

Kolokasi, a tuberous root vegetable native to Southeast Asia, has been cultivated in Cyprus for centuries. The plant thrives in the island's climate, and its unique taste and texture have made it a beloved ingredient in Cypriot cooking. Kolokasi is typically prepared by boiling or stewing, often combined with meat, vegetables, and tomato sauce.

Nutritional Profile

Kolokasi is a rich source of complex carbohydrates, providing energy and satiety. It also contains dietary fiber, which supports digestion and overall gut health. Furthermore, kolokasi is packed with essential vitamins and minerals, such as vitamin C, vitamin E, potassium, and magnesium.

Source: <https://www.intercollege.ac.cy/kolokasi-taro-root/>

Effectives of climate change and Global Warming in Cyprus

Artificial Intelligence Answer

When we put the question to AI gave us the following:

Climate change and global warming have significant impacts on Cyprus, a Mediterranean island nation. These effects can be observed in various environmental, economic, and social aspects. Here are some of the key impacts:

Environmental Effects

1. Temperature Rise:

- Cyprus has experienced a notable increase in average temperatures. This warming trend is expected to continue, leading to hotter summers and milder winters. Increased temperatures can exacerbate heatwaves, which can be harmful to both humans and wildlife.

2. Changes in Precipitation Patterns:

- There has been a decrease in annual rainfall, leading to prolonged droughts. This reduction in precipitation affects water availability for agriculture, drinking, and other uses. The unpredictability of rainfall also poses challenges for water management.

3. Sea Level Rise:

- Rising sea levels due to melting polar ice and thermal expansion of seawater pose a threat to coastal areas in Cyprus. This can lead to coastal erosion, increased flooding, and loss of habitat for marine and coastal species.

4. Biodiversity Loss:

- Changes in climate conditions impact local ecosystems and biodiversity. Many species may face habitat loss or be unable to adapt quickly enough to the changing environment, leading to a decline in biodiversity.

Economic Effects

1. Agriculture:

- Agriculture is highly vulnerable to climate change due to its reliance on specific weather conditions. Changes in temperature and precipitation patterns can affect crop yields and quality. Droughts can lead to water scarcity, which is critical for irrigation.

2. **Tourism:**

- Tourism, a significant part of the Cypriot economy, can be affected by extreme weather conditions. High temperatures and heatwaves may deter tourists, while coastal erosion and loss of beaches can impact coastal tourism infrastructure.

3. **Water Resources:**

- Reduced rainfall and increased evaporation due to higher temperatures strain water resources. This impacts not only agriculture but also the availability of drinking water and industrial use.

Social Effects

1. **Public Health:**

- Increased temperatures and heatwaves can lead to health issues such as heat stress, dehydration, and related illnesses. Vulnerable populations, including the elderly and young children, are at higher risk.

2. **Migration and Displacement:**

- Rising sea levels and loss of arable land may force communities, especially those in coastal and rural areas, to relocate. This can lead to social and economic challenges as people move to urban areas.

3. **Energy Demand:**

- Higher temperatures lead to increased demand for air conditioning, putting a strain on the energy supply and increasing greenhouse gas emissions if the energy is sourced from fossil fuels.

Mitigation and Adaptation Efforts

To address these challenges, Cyprus has been working on various mitigation and adaptation strategies, including:

- **Renewable Energy:** Investing in solar and wind energy to reduce dependence on fossil fuels and decrease greenhouse gas emissions.
- **Water Management:** Implementing more efficient irrigation techniques and water conservation measures to deal with water scarcity.
- **Conservation Projects:** Protecting natural habitats and biodiversity through conservation projects and policies.
- **Public Awareness:** Raising awareness about climate change and promoting sustainable practices among citizens and businesses.

Overall, the impacts of climate change and global warming on Cyprus are multifaceted, affecting the environment, economy, and society. Addressing these impacts requires comprehensive and coordinated efforts at local, national, and international levels.

Our research

1. Increase in temperature

Day by day, the temperature in Cyprus is rising. It is expected that by 2050 the temperature will increase by 1.3-1.9 °C, while the number of days with temperatures above 35 °C is predicted to increase to more than 34 per year indoors.

2. Shortage water resources

The scenarios being considered by the Water Development Department (WDD) are alarming, aiming to prevent the nightmare of water supply cuts, as current data suggests this could be a threat in 2025 and 2026

3. Reduction of rain

The key point seems to be between the years 1968/69 and 1971/72, with a 15-25% reduction in precipitation for the last 30 years of the 20th century. Already facing this existing reduction in precipitation, Cyprus will see additional reductions of 10-15% between 2020 and 2050.

4. Desertification

Cyprus is one of the 13 Member States that have declared to be affected by desertification under the United Nations Convention to Combat Desertification. Estimates suggest that by 2050, about 70% of agricultural land will be very sensitive to desertification and there will be a lack of water for irrigation.

According to the current scientific consensus, warming of the global climate system seems to be unambiguous. The Mediterranean Basin is considered amongst the geographic areas that are most vulnerable to climate change, and is expected to experience adverse climate change effects. Therefore, Cyprus is located in a hot spot and is projected to face significant temperature increases and decline in rainfall levels. An apparent trend of temperature increase and rainfall decline has been recorded for the 20th century. Cyprus faces a severe danger for desertification, which is expected to worsen with climate change. Forecasts from regional climate model simulations for the 21st century highlight the vulnerability of Cyprus to climate change by projecting an increase

in maximum temperature of 1.3-1.9°C for 2021-2050 and 3.6-5°C for 2071-2100, and a sharp decrease in rainfall by the end of the century. As a result, several direct and indirect impacts are expected in various sectors. Water resources will be increasingly stressed so that the already existing risk of desertification will increase. The biodiversity of the island may suffer from serious extinction of species and further invasion of alien species. In forests, the impacts may involve frequent forest mortality events and increased forest fire risk. In agriculture, a substantial portion of the island's crop and livestock production will be endangered. In public health, there will be a higher risk of emergence of specific diseases. Coastlines along the island are expected to experience serious degradation and sea water intrusion due to rising sea level. In the energy sector, additional power generation capacity will be needed in order to fulfil rising needs for space cooling during hotter summers and sea water desalination. The tourist sector may experience a significant loss of summer tourist arrivals due to increasingly inconvenient weather conditions during the hottest months of the year. There may also be impacts on the society in general: health deterioration will increase health care expenditures, increase insurance rates and affect labour productivity; adverse effects in various economic sectors may also lead to job losses. Such effects, however, are not inevitable. Coping with climate change is possible, provided that proactive actions are taken by both the public and the private sector. Public authorities need to set clear priorities and implement well designed policies in line with the projected impacts and the recommendations outlined in this paper. Most importantly, adequate monitoring mechanisms should be set up in order to provide much needed data which can send early warnings to policy makers and the public and can help avoid large natural and economic damages at a later stage. Enabling private adaptation investments and properly pricing the use of 36 natural resources are key priorities for investing in a climate resilient economy.