CICLICA PRIMA

Smart Agriculture optimization to Climate Change Adaptation

PARTNERS:

CSIC Consejo Superior de Investigaciones Científicas

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PRIMA Partnership for Research and Innovation in the Mediterranean Area

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What is the focus of Akdeniz University at CICLICA PRIMA?

Akdeniz University at the **CICLICA project** develops a research initiative that seeks to unravel the intricacies of genetic regulation governing water stress tolerance mechanisms **in alternative crops, namely carob and jojoba**. University have been worked with the BATEM Research Institute together in the project.

Our endeavor is rooted in a profound understanding of the unique challenges posed by climate change and unsustainable agricultural practices in the Mediterranean region, with a vision to fortify the resilience and adaptability of these essential crops.

Describe the role of Akdeniz University at CICLICA PRIMA

Akdeniz University is set to play a pivotal role in the **CICLICA project** by **delving into the intricate genetic regulatory mechanisms underpinning water tolerance in alternative crops, specifically carob and jojoba**.

This institution is committed to advancing our understanding of how these crops cope with water stress, contributing valuable insights to enhance their resilience and sustainability in the face of changing environmental conditions.

Which are the expected impacts?

Our research endeavors are geared towards the creation of new genotypes that exhibit resilience and tolerance to drought conditions. This pioneering work not only addresses immediate challenges, but also holds the promise of ushering in a **sustainable future for the cultivation of carob and jojoba**. By fortifying these crops against the vagaries of climate change and water stress, Akdeniz University's with BATEM Research Institute contributions to the **CICLICA project** stand as a **beacon of hope for the long-term viability and prosperity of these essential agricultural staples**.

What's the importance of this work?

Climate change represents a formidable challenge to sustainable production on a global scale. However, it is in the Mediterranean basin where the impact looms particularly large, characterized by rising temperatures, escalating water stress, and diminishing precipitation levels. Concurrently, the intersection of climate change and unsustainable farming methods compounds the predicament, exacerbating biodiversity loss.

Carob is an important tree of the Mediterranean vegetation due to its good adaptation ability to extreme environmental conditions (drought, salinity, high temperature, poor soils, and minimal care requirements), superior erosion protection capacity, suitable tree for reforestation and afforestation. However, there is no drought tolerant rootstock in the carob. Generally, seeds are used as a seedling. On the other hand, it is of great significance to develop effective molecular markers and understand the genetic architecture of drought stress resistance for the genetic research of *C. siliqua*.

How does Akdeniz University do it?

Our primary objective within this project is the **development of drought-resistant rootstocks for Carob and Jojoba**.

In the pursuit of addressing the prevailing challenges in the Mediterranean basin, characterized by persistent water stress, Akdeniz University's and BATEM Research Institute role in the **CICLICA project** extends to experimental analyses of ***Ceratonia siliqua*** (carob) and ***Simmondsia chinensis*** (jojoba) farms.

Our research endeavors within **CICLICA project** are dedicated to meticulously investigating and comprehending the unique dynamics of these crops in the face of chronic water scarcity. By conducting experimental analyses, we aim to decipher the intricacies of their response mechanisms to these adversities.

This pioneering work not only seeks to provide immediate solutions but also lays the foundation for sustainable agricultural practices, ensuring the resilience and prosperity of carob and jojoba cultivation in the Mediterranean region.

Through rigorous scientific inquiry and innovative solutions, Akdeniz University and BATEM aim to pave the way for a more sustainable and secure agricultural future in the face of these pressing global issues.

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