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## ANNOUNCEMENT

### **New scientific research from the Aristotle University reveals the genetic diversity and pharmaceutical value of yew in Greece**

Thessaloniki, 1/4/2026

A new scientific study from the Aristotle University reveals the genetic diversity and pharmaceutical value of yew in Greece. This **rare tree of the Greek mountains may help in the development of anticancer drugs.**

The research team, coordinated by Professor of the Laboratory of Forest Genetics at the School of Forestry and Natural Environment of the Aristotle University, **Filippos A. Aravanopoulos, identified important populations of European yew (*Taxus baccata*) in Greece as valuable natural sources of substances used in widely applied anticancer drugs.**

#### **Research in three mountainous ecosystems of Northern Greece**

The Aristotle University research team examined three peripheral (in terms of the species' distribution in Europe) yew populations in northern Greece, in the mountains of Cholomontas, Mount Olympus, and Vourinos, in order to assess their genetic diversity, chemotypic variation, and epigenetic characteristics. Taxanes—natural chemical compounds produced by yew trees—are key components of drugs such as paclitaxel (Taxol), which is used **to treat various forms of cancer.**

#### **First comprehensive assessment of Greek yew populations**

This study marks the **first time that Greek yew populations have been evaluated** using such an integrated approach. The results **revealed significant differences among populations in terms of the quantity of anticancer taxanes they produce, as well as notable seasonal fluctuations in their concentrations.** Among all the taxanes studied, the compound 10-deacetylbaccatin III—a key precursor for the semi-synthetic

production of paclitaxel—was found to be the most abundant taxane in the needles, with the highest levels recorded in the Olympus population.

The analyses revealed **substantial genetic diversity** and clear genetic differentiation among populations, indicating that **Greek populations constitute valuable reservoirs of genetic material**. At the same time, researchers detected notable levels of DNA methylation—an epigenetic mechanism associated with environmental adaptation—which highlights the potential of these trees under conditions of intense climate change.

### **Prospects for utilizing the research and the need to protect yew in Greece**

The findings highlight the **potential for developing genetic improvement programs** based on identifying and clonally propagating trees with **high taxane production**, while maintaining the genetic diversity of populations. At the same time, the study underscores **the urgent need to protect the remaining yew populations in Greece**, which are rare and fragmented, often consisting of fewer than 50 individuals.

The researchers propose expanding protected areas that include small yew forests, **establishing genetic resource conservation units, monitoring genetic diversity**, banning logging, regulating grazing, and developing ex situ conservation programs using material from multiple populations to ensure the protection of this valuable natural resource.

### **International publication in a reputable scientific journal**

The research, carried out at the Laboratory of Forest Genetics of the Aristotle University and funded by national resources (ESPA Program), also involved ELGO-DIMITRA and the Italian research institute Fondazione Edmund Mach.

The full results of this extensive study were recently published in the reputable international scientific journal PLOS One.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0324582>.

Photo attached.

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*We kindly request that this event be published, broadcast, and covered by the media.*