

# **Dendroecological Investigation of Sessile and Durmast Oaks from European Locations and Plana Mountain, Bulgaria**

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## **Abstract**

Bulgarian forests provide about 85% of the water flow in the country or around  $3.6 \cdot 10^9 \text{ m}^3$  resource of clean drinking water. Over 80% of protected plants and over 60% of endangered species are retained in the forest communities. The investigation deals with dendrochronological analysis of samples (31) from *Quercus dalechampii* Ten.. The tree rings are measured by LINTAB™ 5 and TSAP-Win™ program. Sessile oak rows (255) from 13 locations in Europe were included to create a scale for evaluation of frequency, duration and depth of eustress. The describing growth models are polynomials of 6 and 7 degree and  $R^2$  is up to 0.85. Calculated EPS is above 0.85%. The cross dating and standardized rows of durmast are processes together with the rows of sessile oak. The number of obtained eustress periods of sessile oak varies from 11 to 57 and for durmast they are 13. The established average depth is 0.240 and is not among the highest, or lowest value for the sessile oak in European locations. Adverse years for durmast are of climatic type CN (cold with normal precipitations) and CW (cold and wet). The years: 1959, 1964, 1973, 1982, 1984, 1996 and 1997 are cold as: 1969, 1976, 1978, 1980, 1991, 1995, 1998, 2005 are cold and wet. The analyse of climatic patterns (eustress year and two years before it) shows that the change in types certainly provoke eustress (63% of the cases).

**Key words:** *Quercus dalechampii* Ten., *Q. petraea* (Mattuschka) Liebl., dendrochronology, eustress, forest management

I prefer poster presentation