

EFFECTS OF DIFFERENT PRETREATMENTS ON THE
GERMINATION OF DIFFERENT WILD CHERRY
(*PRUNUS AVIUM* L.) SEED SOURCES

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Abstract

Wild cherry (*Prunus avium* L.) is an important native hardwood species of Turkey with its high-valued wood. It is also listed as a 'noble hardwood' in Europe with strongly emphasized conservation, sustainable use and genetic potential. Wild cherry seeds are deeply dormant, and level of dormancy may vary significantly within the species. This causes substantial difficulties during seedling production. The effects of different artificial and natural pretreatments in seed germination of three Turkish wild cherry seed sources was examined. The effects of different 0.1 % citric acid soaking treatments prior to cold stratification on the seed germination of a separate seed source was also examined. Pretreatments made significant effects on speed of and cumulative seed germination with substantially different seed source responses. Successive periods of complex, warm and cold artificial stratification regimes rather than cold period alone as well as natural stratification substantially improved the dormancy breaking and germination of wild cherry seeds. Seeds from K. Ereğli were superior over those of the other seed sources in both speed and cumulative rate of germination. Seeds soaked in 0.1% citric acid for 48 hours followed by a 90-day cold stratification period enhanced germination significantly, yet longer acid exposures decreased seed germination substantially.

Introduction

The gap between Turkey's demand for and supply of quality hardwood has dramatically widened (Boydak & Dirik, 1998; Anon., 2001). Intensively growing fast-growing native hardwood tree species on selected forest and agricultural lands is recommended to narrow this gap (Boydak & Dirik, 1998; Anon., 2001). With its fast-growth, high-valued wood (Savill 1991; Eriksson 2001; Martinsson 2001), wildlife (Grisez 1974) and biodiversity values in forest ecosystems (Kobliha, 2002), wild cherry (*Prunus avium* L.) has recently drawn great attention in Turkish forestry (Yaman 2003, Esen *et al.*, 2005). Wild cherry is also designated as a 'noble hardwood' by the European Forest Genetic Resources Program, which encourages research on the species to develop strategies for the conservation and sustainable use (Eriksson 2001; Kobliha 2002).

Adequate seed germination is the key to successful tree establishment (Radosevich *et al.*, 1997). Wild cherry seed has deep dormancy that requires a long, variable period of moist low temperatures, interrupted by shorter periods of moist warm temperatures to germinate (Suszka, 1962; Griszczak, 1974; Ellis *et al.*, 1985; Finch-Savage, 2001; Finch-Savage *et al.*, 2002). Such broad variation in germination behavior results in major difficulties during seedling production of the species in Turkey. The objectives of this study were to determine the effects of different artificial and natural pretreatments on the dormancy and germination behaviors of the seeds of three different wild cherry seed sources (SSs), from the Western Black Sea Region of Turkey. Effects of soaking seeds

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