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Effect of water stress of the substrate on seeds germination of *Abies numidica* de Lannoy in Algeria

M Hachi-Illoul and **B Fady**
Hassiba Ben Bouali University, Algeria

Abies numidica de Lannoy is a forest species endemic of Mountains Babors (Algeria). It is classified as a rare and endangered species. The purpose of this study is to test the germination capacity of seeds in water deficit conditions of the substrate. To simulate water stress, polyethylene glycol (PEG 600) was used to prepare the different levels of osmotic water stress: 0.2, -0.4, -0.6 and -0.8 Mpa. The average rate of germination is between 41.56% (control) and 19.77% (-0.8 Mpa). There is a gradual decline in the average rate of germination as the water potential of the substrate decreases. There are significant differences between treatments, but the 0 threshold has not been reached for -0.8 Mpa treatment. Results were compared between the trees of same population. Variations appear that the average time of germination is not very important. The average rate of germination is more variable, ranging between 12.22% and 75.56% for the control treatment and between 0 and 64% for the -0.8 Mpa treatment. This result revealed a significant heterogeneity between trees, some of them have low germination in some treatments, others observe a gradual decline as the water deficit increases for others, in this case, germination rates remain high even at -0.8 Mpa (64%). Within a given population, some trees may ensure natural regeneration and maintain populations of *Abies numidica* in drought conditions. This species can be considered as a drought tolerant species.

illoulma@yahoo.fr