

Effects of pruning intensity on vitality of *Pinus eldarica* plantation at west Tehran

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Abstract

This research was carried out in Chitgar Forest Park, located in west of Tehran with an area of 1450 hectares.

For determining the effects of pruning on vitality of *Pinus eldarica* Medw. under water stress, pruning trial was done under Completely Randomized Block design with four Treatments (sever, moderate, light, control) and four replicates. The Replicates were selected on four sites with different ecological conditions and maintenance managements.

The definition of the pruning treatments were as follows:

1- Severe: All of the branches were pruned from crown bottom up to two meters.

2-Moderate: All of the branches were pruned from crown bottom up to one meter.

3-Light: Only the dried, infected and less than two cm diameter branches were pruned.

4-Control: Without pruning , except the dried branches at the low level of the crown.

Inventory has been done at two times, before pruning and one year after pruning. Statistical analysis was done using SPSS software. The results show that pruning the effects of the treatments and the replicates on trees vitality were significant at 0.05 level. The sever pruning had the greatest effect on vitality when water stress was very high and soil productivity was very low. Light pruning had the most effect on vitality in fertile sites with regular irrigation, but the moderate pruning had the most effect on pine vitality in seme-fertile site under moderate water stress.

Key words: Forest park, Drought, *Pinus eldarica*, Pruning, Vitality, Water stress, Soil

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Evaluation and Classification of 48 poplar (*Populus* spp.) clones by seedling leaf and wood yield characteristics

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Abstract

The aim of the study was to investigate leaf characteristics of 48 poplar (*Populus* spp.) clones and their relationships with seedlings wood yield. The trial was conducted in 2003 at Zalleh Nursery of Sanandaj City, under Completely Randomized statistical design (CRD) with nine replicates, using one year old (1/1) seedlings. Five leaves were sampled from the middle level of each seedling crown at early August. (five leaves for each seedling clone at each replicate), air dried and measured in laboratory. The measured leaf parameters were: weight, surface area, length, width, length / width ratio, total seedling green surface area (leaf surface area \times leaf number), main nerve number, petiole length, lamina weight, lamina / total leaf weight ratio, seedling Leaves number and weight of surface area unit. The seedlings height, diameter and wood yield were measured as well. NOVA, regression and cluster statistical methods were applied for data analysis and classification. The results showed that the regression MS of leaf characteristics on seedling wood yield was significant at $\alpha = 0.01$. there were high and positive correlations between leaf characteristics, particularly surface area, weight and total green surface area and seedling wood yield at $\alpha = 0.01$ ($r = 0.343, 0.309$ and 0.343 , respectively). There were high diversity among poplar species and clones in view point of leaf characteristic. Mean leaf surface area and weight and seedling total green area of the clones was 46.8 cm^2 , 0.4 g and 1724.5 cm^2 , respectively, whereas for the five superior clones was 81.85 cm^2 , 0.8 g and 2314.43 cm^2 , respectively. The highest leaf surface area and total leaf number belonged to the superior clones of *P. deltoides* and *P. nigra*, respectively. Cluster analysis based on leaf characteristics and both leaf and stem height, diameter and yield parameters, showed that the leaf characteristics classified the clones botanically whereas the leaf and stem parameters classified them botanically and silviculturally, particularly the wood production potential characteristics. Using the last applied method of classification, the 48 poplar clones were classified at six groups as follows:

P. alba (very low wood yield), *deltoides* 1 (high yield), *euramericana* (low to medium yield), *P. nigra* (medium yield), *P. euphratica* (very low yield) and *P. deltoides* 63 (very high yield).

key words: Poplar, *Populus* spp, leaf, yield, wood, seeding

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Three Eucalyptus species trial on central coastal lands of Caspian sea in Iran

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Abstract

The trial was carried out in 1983, using three fast growing species including *E. camaldulensis*, *E. saligna* and *E. viminalis* at Chamestan - Noor Natural Resources Experimental Station. The altitude, latitude and longitude are 85 m. above sea level, 36°, 30` North and 52°, 5` east, respectively. Average annual rainfall is 840 mm. Average daily and absolute maximum and minimum air temperature are 15.8, 36 and - 8°C, respectively. The measured tree parameters were: Survival, height, diameter and stem quality. The data statistical analysis was made, using the measurement in 2003. The SPSS software and t - test were used for the data analysis. The best species in view point of survival, diameter, height and quality were *E. camaldulensis*, *E. viminalis* and *E. saligna* (both parameters), respectively.

Key words: Compatibility, fast growing, Eucalyptus, *E. viminalis*, *E. camaldulensis*, *E. saligna*

Elimination trial with six tree species in Korbali plain and effects of drainage water on their growth

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Abstract

The aim of the study was to investigate the adaptability of six native and exotic tree species at Korbali plain, Shiraz, I. R. Iran and the effects of drainage water on their growth and survival. The experiment design was split plots with three replicates. The main plots consisted of salty and ordinary water, supplied by drainage channels and Kor river, respectively. The subplots consisted of six species, including *Eucalyptus camaldulensis* Dehn, *E. microtheca* F. Muell., *Acacia stenophylla*, *Fraxinus rotundifolia* Miller, *Populus euphratica* Oliv. and *Tamarix aphylla* (L.) Karst. The results showed that the effects of irrigation treatments on survival and growth were not significant at first year of the trial. Resistance of the *E. camaldulensis*, species *E. microtheca*, *A. stenophylla* and *T. aphylla* to salinity and drought was good, whereas the resistance of *F. rotundifolia* to both environment conditions was not good and resistance of *P. euphratica* to salinity was excellent, but its resistance to drought was low. The tolerance of the species, *E. camaldulensis*, *A. Stenophylla*, *E. microtheca* and *T. aphylla* to frost (-9°C) at the first year of the trial was low and the crown damage percentage was 80.8, 100, 31.6 and 97.1, respectively. *E. microtheca* was the most tolerant species due to its highest percentage of survival (88.3) at the end of the trial. The irrigation with drainage water had remarkable effects on tree growth and survival, particularly at summer.

Key words: Salinity, drought, growth, Survival

Investigation on Adaptability and Quantitative Properties of Redwood (*Sequoia sempervirens*) in north of Iran, Mazandaran province.

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Abstract

A 19 year old plantation (4×4m) of Redwood on an area of 0.16 ha was selected in Chamestan Experimental Station in Mazandaran Province (North Iran). Results indicate that mean of diameter at breast height ,height and volume per hectare were 31/8cm ,15/15m and 310/65 sylve, respectively. Also the following results were obtained :

- mean of annual d.b.h. increment = 16/8mm
- mean of annual height increment = 80cm
- mean of annual volume increment = 21/55m³
- h/d coefficient = 47/6

The diameter class of 30-35 cm had the greatest number and volume of trees. Increase in d.b.h. decreased form factor and stability coefficient. Seed production started at age of 15 year. The number of seeds per kilogram and their germination percentage was 288018 and 22, respectively. Survival of *Sequoia sempervirens* after 19 years and at density of 712 per ha, was 94 percent. Plantation of the species is recommended for climatically and edaphically matched sites due to its high rate of survival and growth.

Key Words: Adaptation, Quantitive properties, Growth, Diameter, Height, volume.

Copertree (*Capparis decidua*); unknown fruit of south Iran**Gh. R. Damizadeh¹**

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Abstract

Ripe and unripe fruits of *Capparis decidua* (Forssk), Edgew were collected from its natural habitat at Sirik Harbour, Hormozgan province in 2001 (June). The ripe and unripe fruits were separated in labroatory and their nuritional values were tested and compared with the other tropical and temperate fruits. the results show that despite the dry material which in unripe fruit is more than the ripe fruit, the other nutritional values are the same in the both fruits. The nutriotional values of the unripe fruit are as ollows:

Dry matter 35.73%	Carbohydrates 57.36%
Row protein 18.76%	Phosphorus 48 mg
Fat 5.97%	Sodium 580 mg
Crude fiber 12.5%	Ash 5.41%

Key words: *Capparis decidua*, nutrition, Capertree, fruit