**Afforestation challenges in semiarid climate conditions**

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**Abstract**

Afforestation development in semiarid areas is not easy, because of the lack of water and the costs of irrigation. The objective of this research was to find a practical way for afforestation development and optimal and viable solution for creation and irrigation of planting in semiarid zones of Iran in collaboration with 3 domestic and 2 foreign universities from Germany and Czech Republic and Departments of forest and environment of Iran.

This research was carried out at 50 kilometers to the south of Tehran known as Jajrood. This aim was arrived at by the use of a super absorbent material, bearing the trademark Hydrogel Super absorbent Stockosorb 300. In this study, 4 conifers species (*Pinus eldarica* , *Thuja orientalis*, *Cupressus arizonica* and *Cupressus sempervirens*) and 4 broadleaf species (*Robinia pseudoacaccia, Ailanthus altissima, Acer negundo* and O*lea eurpea*) were administered with 5 treatments. The results of the research proved that the type of treatment which had been employed had a positive effect on the aliveness of the saplings. From amongst the 8 species studied, *Robinia pseudoacaccia* proved to be the best species and *Cupressus sempervirens* the worst.

In this paper, mortality of saplings and water irrigation for all conifers and broadleaves tree in the semiarid regions will be discussed.

**Keywords:** Afforestation, Super absorbent, Semi-arid

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