



**MEXICAN RESEARCHERS WORKING ON REINFORCED CANDELILLA
PLANTS TO ENSURE SUCCESSFUL REFORESTATION**

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The state of Coahuila in Mexico produces around 80% of total volume of Candelilla Wax traded around the world¹; for that reason, the main efforts for reforestation of Candelilla are concentrated in this area. Since the level of success of a reforestation process is subject to different variables according to externalities such as weather, soil and rain level, Mexican researchers are working towards production of Candelilla seedlings through cuttings, analyzing different ecotypes with a variety of growing media and chemicals treatments, determining the most accurate conditions for rooting and shoot growth.

Historically the production of Candelilla Wax has been concentrated in the region of Coahuila, for that purpose, SEMARNAT has developed different efforts to preserve the resource and to ensure the continuance of the commercial activity that has represented a steady source of income for rural communities. As of the year 2009, CONAFOR has reforested more than 34,000 hectares with more than 42 million plants in addition to more than 27,000 hectares of commercial plantations for Candelilla², principally within the Coahuila region.

Due to its characteristics, Candelilla has a high grade of resistance to different conditions from its ecosystem; however there are certain concerns about the percentage of success of Candelilla's reforestation process, principally due to the adversities that plants could experience during early stages of its replantation.



Picture © Candelilla Institute: Reforested Candelilla field.

Mexican researchers from the Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) – CENID-RASPA and the Universidad Autónoma de Chapingo³ developed a study oriented in root promotion of Candelilla cuttings by evaluating the effect of four ecotypes, four growing media and four chemical treatments. The research used ecotypes from four different regions such as Cuatrociénegas and Viesca in Coahuila; and Cuencamé and Tlahuanillo from Durango. The study was

carried out in a semicircular naturally ventilated greenhouse covered with plastic, where different parameters such as rooted cuttings, shoots per cutting, total shoot length and total root length were analyzed.



Picture © Candelilla Institute:
Candelilla plant at reforested field.

Among the conclusions obtained from the research, it was found that the ecotype from Cuatrociénegas has special genetic characteristics that make it superior to other ecotypes and requires no chemical products for root formation and shoot emission and growth. Also found certain combinations that provide better results on rooted cuttings and shoot growth.

As commented by Villa-Castorena et al. (2010), producing Candelilla seedlings by using plants parts in nursery conditions is an option for obtaining healthy and vigorous plants that can reforest degraded areas.

References:

1. Schneider, E. (2009) "Trade survey study on succulent *Euphorbia* species protected by CITES and used in cosmetic, food and medicine, with special focus on Candelilla wax." 18th meeting of the Plants Committee. Commissioned by Bundesamt für Naturschutz, CITES Scientific Authority, Germany.
2. CONABIO (2009) "Evaluación del estatus de *euphorbia antisiphilitica* en México dentro de los apéndices de la CITES". 18^a Reunión del comité de flora, Buenos Aires, Argentina, 17-21 de marzo de 2009. CITES.
3. Villa-Castorena, M., Catalán-Valencia, E.A., Inzunza-Ibarra, M.A., González-López, M. de L., Arreola-Ávila, J.G. (2010) "Producción de plántulas de candelilla (*Euphorbia antisiphilitica* Zucc.) by cuttings." Revista Chapingo Serie Ciencias Forestales y del Ambiente 16(1): 37-47.