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## Vegetative propagation of *Dendrocalamus asper*, *D. giganteus* and *Bambusa vulgaris* by vegetative propagation

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### Abstract

Bamboo is the fastest growing tree on earth the growth rate being one foot per day. It has market potential as furniture, pulp, housing, flooring, scaffolding, mat boards, as food (shoots) and also as medicine. According to published reports, one clump can produce 200 poles in 3-5 years and produces up to 15 km of usable poles with 30 cm diameter in its lifetime. It has a very important role in environmental conservation also. It is widely planted for river bank conservation. It has been reported to sequester up to 12 tons of carbon dioxide per hectare.

In Sri Lanka there are about 14 bamboo species including indigenous ones. Currently bamboo cultivation is being done by informal sectors in small scale, except the ones done by Mahaweli Authority of Sri Lanka under the Riverine Bamboo Project. There is a big demand for bamboos for poles in construction, furniture and related industries as well as bamboo shoots for export. *Dendrocalamus* species are used for both timber industry and food industry while *Bambusa* species are used primarily for wood and related purposes.

The study was undertaken to identify the most optimal method of *Dendrocalamus asper*, *D. giganteus* and *Bambusa vulgaris* using different propagating material (culms vs. branches), rooting media, plant growth hormones in two different propagating environments (under mist and in a low cost poly propagator with high moisture content). Single node culm cuttings and branch cuttings of each species were collected during the month of June-July. The rooting media varied from soil: sand (1:1), soil: sand: coir dust (1:1:1), soil: sand: saw dust (1:1:1), soil: sand: paddy husk (1:1:1) and sand only. The plant growth substances varied from rootone, 100 ppm NAA, 100 ppm IAA, 100 ppm IAA and NAA, 500 ppm IAA and NAA and control with no growth substances. Each treatment was replicated 7 times per each species. The cuttings were maintained under non-mist poly propagator and under mist for 2 months. The percentage survival, number of sprouts and roots, length of sprouts and roots were taken by harvesting after the study period. The results were analyzed using SPSS statistical package.

The study revealed that propagation from culm cuttings of *B. vulgaris* (100%) in both conditions were better than other types, but *D. asper* (100%) and *D. giganteus* (86%) were successful in branch cuttings in mist conditions. The rooting medium soil: sand: coir dust (1:1:1) in mist conditions was the most suitable medium for *D. giganteus* (100%) but for *B. vulgaris* (86%) it was under non mist conditions. Rooting medium soil: sand (1:1) media was the best for *D. asper* in mist conditions (86%). Rootone in the mist conditions gave the best results for the propagation of *D.asper* (86%) and *D.gigantues* (100%), but application without plant growth substances under both conditions gave best results for *B. vulgaris* (100%).

**Key words:** Bamboo culm cuttings, branch cuttings, vegetative propagation