

Propagation of *Bambusa vulgaris* (yellow bamboo) through nodal bud culture

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SUMMARY

Bambusa vulgaris (yellow bamboo), is the most commonly cultivated and used bamboo species in many countries. With the increased demand for bamboo, the importance of bamboo plantations has been realized. This would require large quantities of planting material continuously for which tissue culture techniques offer a solution. The propagation of *B. vulgaris* through nodal-bud culture was studied. Single nodal segments were tested for bud-break and shoot growth on basic Murashige and Skoog (1962) medium (MS) supplemented with different combinations and concentrations of growth regulators. Results suggest that cytokinin is important for bud-break. Gibberellic acid enhances multiple shoot production in this species. The position of the node on the culm appears to affect bud-break and multiplication, middle nodes are the most suitable. Also, removal of prophylls enhances bud-break. The shoots developed from axillary buds could be rooted on MS basic medium at 50% macro and IBA (0.25 μM). Upon transfer to the field (after four weeks in the rooting medium), the shoots developed into true-to-type plants.

BAMBOO (family Gramineae), contains more than 75 genera and 1,250 species. In Sri Lanka, 14 species of seven genera have been reported (Senaratne, 1956). Of these, *Bambusa vulgaris* (yellow bamboo, local name: Una, Figure 1) is the one mostly cultivated in Sri Lanka (Vivekanandan, 1990).

Like many bamboo species, yellow bamboo is an important multipurpose forest plant having considerable economic importance in many countries. It supplies timber for building houses and other construction, fencing and furniture. This species is also used to make baskets, vases, pencil and pen holders, lamp shades, etc., all of which have a decorative and utility value.

Bamboo, especially the yellow bamboo, has a long history of traditional use in Sri Lanka, although it is less utilized there than in other Asian countries. *Bambusa vulgaris* is most widely planted in wet, lowland rural areas and also along water bodies in dry areas.

At one time, bamboo was known as 'poor

man's timber' because it was readily available in forests and along water courses. With continuous mass use, it is now much less available. Over exploitation and mis-management of natural stocks have rapidly depleted this resource. Therefore, large scale replanting and developing of bamboo plantations is necessary to satisfy the demand and maintain the species. However, this would require a continuous supply of large amounts of planting material.

The traditional propagating materials are seeds, offsets and culm cuttings. Propagation by seeds cannot be used for continuous production as bamboo has a long and unpredictable flowering habit (range from 23-60 years, Mascarenhas *et al.*, 1988). Also, seeds are recalcitrant. Use of culms requires considerable time and labour to produce a large number of plants. This is where tissue culture techniques would become important, as *in vitro* propagation is considered to be a rapid and successful means of propagation that has been used commercially (George and Sherrington, 1986).

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