

Short Communication

Successful Rooting in Cuttings of *Commiphora wightii* (Arnon) Bhandari

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The dry climate of western Rajasthan supports a number of plant species, which are endemic to this arid ecosystem and are not found elsewhere in India (Bhandari and Shringi, 1987). One such plant species is *Commiphora wightii*, commonly known as guggul. This is one of the most endangered plant species of this region and is included in the Red Data Book of IUCN. The plant is much branched, hardy and occurs as a shrub or a small-size tree. It is an ancient medicinal plant and a source of gum, which is pale brown or dull green in color. The gum exudes from the major branches in cold season, and has many medicinal uses such as astringent, antiseptic on old wounds, as a urine stimulant, lotion for ulcers, and gargle material for weak and spongy gums. The young branches are used for brushing teeth. The oleogum-resin of this plant, is an indigenous drug that is known to be highly effective in the treatment of obesity, arthritis and several

other diseases in Indian system of medicine (Ayurveda). The gum is also used in incense making. This valuable plant species is now under threat due to its lack of natural propagation by seeds and over-exploitation for gum. The seed germination studies for this species under nursery conditions were difficult as the seeds failed to germinate (Atal *et al.*, 1975). Even with different chemical treatments the germination percentage and seedling growth were not satisfactory (Singh *et al.*, 1998). Very little information is available on its vegetative propagation. Therefore, the present investigation was undertaken to multiply the species through vegetative cuttings.

The objective of our investigation was to determine the efficacy of root initiation in tender and hard wood cutting of this species. During December 1999 fifty cuttings, each of tender and hard wood, were tried for this purpose. The tender cuttings, each with a mean diameter of

Table 1. Effect of the type of cutting on shoot/root initiation in guggul plant

Treatment	Dia. (mm)	Shoot		Root		
		Initiation (%)	Length (cm)	Initiation (%)	No. of roots	Length (cm)
Tender cutting	6.3	98	20.4	40	12	15
Hard wood cutting	9.4	93	9.6	10	5	6

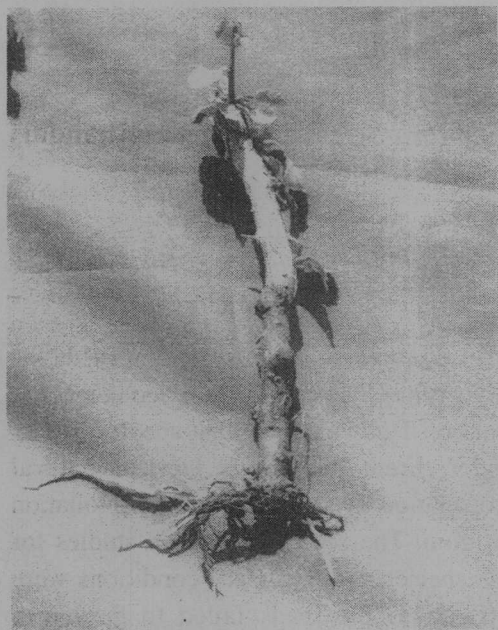


Fig. 1. Rooting in cuttings of *Commiphora wightii*.

6.3±0.8 mm and hard wood with 9.4±1.0 mm, having a length of 17 cm, were selected for the study. The cut was made just above the bud initiation and the cuttings were planted in 25 x 10 cm polybags, filled with nursery mixture. The polybags were kept in the mist chamber at a constant temperature of 30±2.5°C. The polybags were irrigated at regular interval.

Shoot initiation was observed after a week of planting. However, the root initiation was observed after 20 days in

both the cuttings. Root initiation was observed in 10% of the cuttings in hard wood, whereas it was 40% in tender cuttings. The roots were many and profuse (12 Nos.) and grew faster (15 cm) in tender cuttings than in the hard wood (Table 1, Fig. 1).

It is inferred that perhaps the age as well as the size of the cuttings have major influence on the root/shoot development and growth in the guggul cuttings. It is felt that the hormonal treatment for tender cuttings might further enhance the percentage of root development. Further studies have already been initiated with different levels of growth hormones treatment for the tender cuttings of guggul, and the emerging trends are encouraging.

References

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