



# Nursery technique of *Pittosporum eriocarpum* (Tumdi)



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### **Description:**

- *Pittosporum eriocarpum* Royle (Family: Pittosporaceae) is an endemic tree species restricted to Uttarakhand Himalaya but later on it was also reported from Chamba, Himachal Pradesh. The fruits are capsule.
- It is endangered by International Union for Conservation of Nature and Natural Resources (IUCN, 2015 and BSI, 2020).
- In India, the genus is represented by 11 species distributed in North -West Himalaya, Eastern Himalaya and Western Ghats. Of these, only two species viz. *P. eriocarpum* and *P. napaulense* are found in North-West Himalaya.
- *P. eriocarpum* Royle was first described by Royle in 1834 from the upper hills of Sahastradhara and Mussoorie localities.

#### Uses:

- Bark of the species is widely used for the preparation of traditional medicines for the treatment of narcotic, expectorant, bronchitis and other ailments as well.
- This species is useful in traditional medicine for their sedative and cough relieving effects.
- Several active phyto- chemical compounds such as triterpenoid saponins, carotenoids, and essential oils were isolated from this species.
- The species have anti leukemia properties

#### Seed germination:

- Fresh fruits of *P. eriocarpum* were collected from different locations of Mussoorie Forest Division and Botanical Garden of Botanical Survey of India (BSI), Dehradun in the months of November December (2021-22).
- On an average, the 100 seeds weight was recorded (11.97g) and 8393 number seeds per kg were also recorded.
- The presence of sticky oil on the surface of seeds affects proper seed dispersal and germination.



- Seed germination test were conducted as prescribed by International Seed Testing Association (ISTA, 2010). Seeds were placed in germinator at 30°C temperature.
- Seed germination was completed within four weeks with 54.76 per cent mean germination was recorded in nursery. However, the seeds were also treated with gibberellin (500 ppm) and gave 85.51 per cent mean germination under controlled conditions.
- It is evident from the results that pretreatment of *P. eriocarpum* with 500ppm gibberellin (growth promoter) also helps to hasten germination.

### Air-layering:

- Air layering trial on this species carried out during the month of September, 2021 in Mussoorie Forest Divisions of Uttarakhand State on natural population.
- For this experiment, young, healthy, vigorously branches of same maturity stage having the diameter of about 1.0 cm were selected. Leaves on the selected branches were removed above and below the point where the cut was made (55.0 cm below the shoot tip).
- Branches were injured by removing a 2.0 2.5cm length ring of the bark and cambium layer by making two parallel cuts and by joining those cuts with a single transverse cut.
- 1000ppm. 10000ppm Indole Butyric Acid (IBA), Indole Acetic Acid (IAA), Naphthalene Acetic Acid (NAA) and Thymine in the form powder directly applied on the wound using a sterilized brush.
- Treated wound sites were enclosed with moss grass (about two handfuls) moistened with water by placing around the treated area and wrapped with low density polyethylene (150 gauges) sheet.
- Layers were tightly secured with polythene by cotton strings to avoid the escape of moisture. In this experiment, there were total of eleven treatments including control and in each treatment twenty five shoots were air-layered randomly.

- First observation on air layered branches was recorded after 120 days of setting the experiment.
- Rooting (46.86 %) was observed in air- layers with 5000ppm Indole Butyric Acid (IBA) in monsoon season.
- The rooted air layers after detachment from the mother plants were transplanted in poly ethylene bags in the growing medium containing sand, soil and farmyard manure (FYM) mixture in the ratio of 1:1:1.
- It is evident from the results of the experiments conducted in the field/ natural conditions that shade was essential for the success of the air layers.
- Direct sun light not only dries off the medium used for the layer but injures the delicate root tips as they peep out of the layers.
- The best results were therefore obtained in layers which were under full shade throughout the day.

#### **Branch cutting:**

- Vegetative propagation by different type of cutting in different seasons (rainy and winter) has also been investigated in this species.
- For branch cuttings viz hardwood, semi-hardwood softwood and coppice shoots were taken.
- One-year old coppice shoots were collected from the young natural population in rainy and winter seasons.
- Twenty five cuttings (10 15 cm length with thickness 1.50 2.0cm for hardwood and semi hardwood) and 0.80 -1.0cm for softwood and coppice cutting) were used in each treatment. The basal part of each cutting was cut saliently.
- Cuttings were treated with different concentrations with 1000ppm-10,000ppm root promoting hormones i.e., Indole Butyric Acid (IBA), Indole Acetic Acid (IAA), Naphthalene Acetic Acid (NAA) and Thymine.
- It is evident from the result that the coppice shoots in this species performed well with 5000ppm Indole Butyric Acid (IBA) and produced more rooting per cent as compare to other cuttings. It is also noticed that rainy season performed better for rooting per cent in this species.

# **GLIMPSES OF EXPERIMENT**



Fig: 1. Fruits of *Pittosporum eriocarpum* 



Fig: 2. Seed processing and handling



Fig: 3. Seeds germination in Petridish Plate



Fig: 4. Seeds germination in Petridish Plate





Fig: 5. Seedlings of *Pittosporum eriocarpum* 



Fig: 6. Air - layering in *Pittosporum eriocarpum* 



Fig: 7. Air - layering in *Pittosporum eriocarpum* 



Fig: 8. Branch cutting experiment





Fig: 9. Preparation of cuttings



Fig: 10. Sprouting of branch cuttings



Fig: 11. Rooting in *P. eriocarpum* with IBA

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Fig: 12. Rooting in *P. eriocarpum* with IBA



Fig: 13. Planting in field



Fig: 14 Planting in field

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