Title of the Project:- Germplasm evaluation and standardization of propagation technology for production of quality planting stock of medicinally important species viz. *Anogeissus latifolia* & *Commiphora wightii.*

Why this Project:-

Natural regeneration and distribution of these species in natural forest is decreased in past few years, due to overexploitation and poor seed germination. Representation of these species in forest area are lacking so quality seed collection and nursery technique should be standardized for increasing their density in forest.

Research Methodology:-

- Seed collections - 10 seed zones with 03 sites in each zone.
- Evaluation study on the basis - Morphological and physiological attributes.
- Standardization of vegetative propagation.

Study design: Randomized Block Design (RBD)

Objectives of Research:-

- To identify the potential pockets of *Commiphora wightii* and *Anogeissus latifolia* in Madhya Pradesh and to evaluate germplasm with reference to morphological and physiological attributes.
- To develop seed and nursery techniques of targeted species.

Activities Undertaken:-

- Seeds of *Annogissus latifolia* were collected from 10 seed zones with 30 sites.
- Analysis of seeds with various parameters was done of 10 seeds zones.
- Experiments were done on pre seed treatment, storage condition.
- Various potting mixture were applied on seedlings of 07 seed zones for production of quality seedlings.
- Observations on seedling growth and biomass of 03 zones were completed.
- Data analysis of various experiments output is in progress.

Cost of the Project:- 39.02 lakhs

Expected Outcome of Research:-

- Identified potential pockets.
- Evaluate best germplasm.
- Standardize seed techniques.
- Standardize nursery techniques.
- Technical brochures.

Achievement

- Seed collection from identified superior sources of *Anogeissus latifolia* was completed from 10 seed zones of MP.
- After collection best germplasm was evaluated from the point of view of morphological and physiological parameters.
- Seed and nursery techniques were standardized for production of quality planting stock of *Anogeissus latifolia* and *commiphora wightii.*
- Data analysis work of various parameters related to germplasm evaluation is in under progress.

Final findings:

- ***Anogeissus latifolia***
  - Potential pockets were identified for collection of superior germplasm.
  - Best germplasm was evaluated on the basis of morphological and physiological attributes analysis.

- Seed techniques for enhance the seed longevity and germination potential of targeted species were standardized.
- Nursery techniques for raising quality planting stock of selected species were standardized.
- Technical brochures were prepared based on the outcome of research to make it available for practical application in the field by the foresters of the forest department and by the general public.

❖ ***Commiphora wightii***

- Best source – Morena Forest Division comes under Seed Zone – I.
- Best seed collection period – April.
- Germination percent in the month of April was found to be 52% with treatment T1 (seed soaking in cold water for 24 hrs.) against 20% in control (without treatment).
- Germination potential in the month of November collected seed was found to be 26% with treatment (T1) against 5% in control (without treatment).
- Best storage conditions – Seed stored at 4℃ temperature to enhance the longevity upto 7 days against 3 days of control.
- Seed longevity only 3 days.
- Best seed sowing container with media – Germination tray with pure Sand.
- Best potting media – T13 (T0 + 20 gm Rizobium).
- Vegetative propagation – Highest rooting response was observed 500 ppm GA_3 with 7 mm dia in the month of August – September.

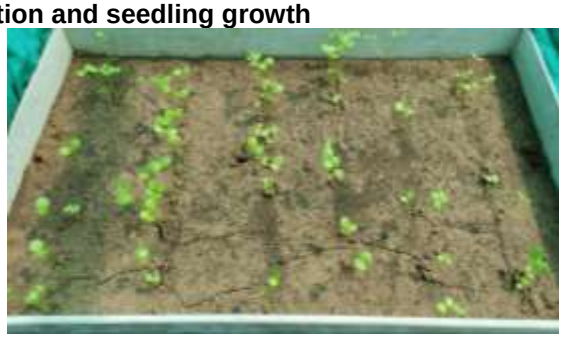
  Final report submitted to the funding agency.

Seeds of *Commiphora wightii*

Seeds of *Anogeissus latifolia*

***C.wightii* : Seeds germination and seedling growth**

Seed sowing of *C. wightii* & *A. latifolia*



Germination of *A. latifolia*


***Anogeissus latifolia*: Seedling growth in different potting media**


***Anogeissus latifolia*: Seedling growth and biomass estimation**


Vegetative propagation, seedling growth and rooting response of *C. wightii*