

## Assessment of Pre-Sowing Treatments on Seed Germination in Lesser Known Threatened Tree-Kamala [*Mallotus philippinensis* (Lam.) Mull. Arg.]

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### 1. Introduction

*Mallotus philippinensis*, commonly known as Kamala, Kampillaka and Kapila, is one of the lesser known threatened tree species distributed mainly in the tropical and subtropical forests of the India. Propagated mainly through seeds and the rate of natural reproduction is very poor, nearly 30 per cent due to hard seed coat. In the present study, influence of pre-sowing treatments on seed germination of Kamala was assessed in the nursery.

### 2. Material and methods

The present investigation was conducted at College of Forestry, NAU, Navsari, Gujarat during 2022. For this experiment, fourteen treatments of pre-sowing seeds treatments including control and three repetitions were adopted by following completely randomized design. Treatment includes-T1:Control (no pre-sowing treatment); T2:Soaking seeds in normal water for 12 hrs.; T3:Soaking seeds in normal water for 24 hrs.; T4:Soaking seeds in normal water for 48 hrs.; T5:T2 + Soaking seeds in GA3 solution @ 50 ppm for 30 min.; T6:T2 + Soaking seeds in GA3 solution @ 100 ppm for 30 min.; T7:T2 + Soaking seeds in GA3 solution @ 150 ppm for 30 min.; T8:T2 + Soaking seeds in GA3 solution @ 200 ppm for 30 min.; T9:T2 + Soaking seeds in GA3 solution @ 50 ppm for 60 min. T10:T2 + Soaking seeds in GA3 solution @ 100 ppm for 60 min.; T11:T2 + Soaking seeds in GA3 solution @ 150 ppm for 60 min.; T12:T2 + Soaking seeds in GA3 solution @ 200 ppm for 60 min. T13:Soaking seeds in cow dung slurry for 24 hrs.; T14:Soaking seeds in cow dung slurry for 48 hrs. Observations for germination parameters were recorded for 30 days.

**Table 1.** Pre-sowing treatments effect on germination attributes of *M. philippinensis*

Treatment	G (%)	MDG	PV	GV	GRI
T <sub>1</sub>	29.00±9.85	0.85±0.29	1.10±0.50	1.04±0.81	15.92±8.55
T <sub>2</sub>	36.33±7.51	1.07±0.22	1.92±0.07	2.05±0.43	28.98±3.07
T <sub>3</sub>	42.67±5.51	1.25±0.16	2.17±0.57	2.78±1.07	34.18±6.96
T <sub>4</sub>	46.00±7.94	1.35±0.23	2.46±0.74	3.42±1.62	36.41±10.37
T <sub>5</sub>	39.00±6.56	1.15±0.19	1.75±0.35	2.05±0.76	28.14±3.44
T <sub>6</sub>	38.33±10.97	1.13±0.32	2.19±0.46	2.57±1.30	32.72±7.87
T <sub>7</sub>	26.67±14.29	0.78±0.42	1.41±1.00	1.38±1.34	20.40±15.53
T <sub>8</sub>	39.00±11.36	1.15±0.33	2.17±1.06	2.73±2.13	33.71±15.03
T <sub>9</sub>	48.67±6.51	1.43±0.19	2.59±0.49	3.72±0.90	39.53±5.71
T <sub>10</sub>	42.00±1.73	1.24±0.05	2.48±0.65	3.08±0.88	37.95±9.45
T <sub>11</sub>	44.67±4.62	1.31±0.14	2.64±0.47	3.47±0.64	38.60±7.46
T <sub>12</sub>	32.00±10.44	0.94±0.31	1.72±0.70	1.76±1.06	25.40±10.22
T <sub>13</sub>	33.67±13.50	0.99±0.40	1.55±0.53	1.68±1.12	25.39±8.87
T <sub>14</sub>	27.33±27.79	0.80±0.82	1.63±1.79	2.28±3.51	23.04±25.82
Mean	37.52±6.30	1.10±0.19	1.98±0.49	2.43±0.86	30.03±6.94

### 3. Results and discussion

The important germination parameters of *M. philippinensis* recorded maximum in treatment, soaking seeds in normal water for 12 hrs followed by soaking seeds in GA<sub>3</sub> solution @ 50 ppm for 60 min (T<sub>9</sub>) for germination (48.67 %), Mean Daily Germination (1.43), Germination Value (3.72) and Germination Rate Index (39.53) whereas maximum Peak Value of germination (2.64) was observed in soaking seeds in normal water for 12 hrs followed by soaking seeds in GA<sub>3</sub> solution @ 100 ppm for 60 min (T<sub>11</sub>). Normally pre-sowing seed treatments help to breakdown the physical and or chemical dormancy of seeds and to enhance the germination attributes. In the present trial, pre-sowing seed treatments may be able to break down the seed dormancy and ultimately enhancing the germination parameters. Among several pre-sowing treatments, seeds treated with normal water for 12 hrs followed by soaking seeds in GA<sub>3</sub> solution @ 50 ppm for 60 min was found to be good among other treatments and this treatment may be useful for enhancing the germination attributes of *M. philippinensis* in the nursery.