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Influence of Different Pre-Treatments on Seed Germination of*Ailanthus Excelsa*Roxb.; An Important Medicinal Tree plant

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Abstract - *Ailanthus excelsaRoxb* is large tree belongs to familySimarubaceae. It is found in deciduous forest of Marathwada region.As this is very valuable medicinal tree, efforts have been taken to propagate it by seeds. Seeds were treated with different mechanical, hormonal and scarification treatments. It was observed that, the highest percentage of seed germination was recorded in Hot water[60^{0}C] treatment for 15 min. (98%) than other treatments.

Keywords: Seed germination; scarification and *Ailanthus excelsaRoxb.*

I. Introduction

*Ailanthus excelsa*Roxb is commonly known as*Maharukh*in Marathi. It is tall tree, pinnatly and lanceolate leaves. Corolla large, greenish-yellow and solitary, ovoid-orbicular, acute at both ends and brown seeds[1].The root bark is used as substantial antitumours [2] and leaves are useful in asthma, bronchitis and dyspepsia. Bark is used as expectorant and antispasmodic [3], antibacterial [4] and also used as antifertility [5].

II. Materials and Method

*Ailanthus excelsa*Roxb is valuable medicinal tree in deciduous forest. It should be propagated and cultivated to maintain its population, due to its poor seed germination; hence efforts have been taken to propagate by seeds. For present investigation, seeds were collected from Anala village of Osmanabad district (Maharashtra) India. Seeds were shown only 20% seed germination, without any treatment. Due to this, seeds were given different mechanical, Acids and hormonal treatments of different concentrationsfor various time duration.Germination percentages were studied by using 100 pure seeds of plant.

III. Result and Discussion

It is revealed from the data (Table) that, the untreated seeds of *Ailanthus excelsa* exhibited only 20% germination. When the seeds were subjected to different pre-treatments. It was observed that, the maximum percentage of seed germination (98%)found in hot water treatment at 600C for 15 min. The IAA (50ppm), 1.5 min treatment and mechanical treatment were observed to exhibit high seed germination i.e. 96%, 94% and 93% respectively. Similar observation has been made by Dammel[6], who observed increased germination percentage of 2 species of *Acacia- A .origenia*and *A. pilispinal* with hot water treatment. Sabiiti&Wein[7] linked this to possible adaptation to frequent fires in their natural habitat. Bowen &Eusibio[8] reported that, fire as a powerful natural factor in breaking the seed coat dormancy of *Tectonagrandis*and *Acacia margin.*.

Table.Effect of different pre-treatments on seed germination of*Ailanthus excelsa.*

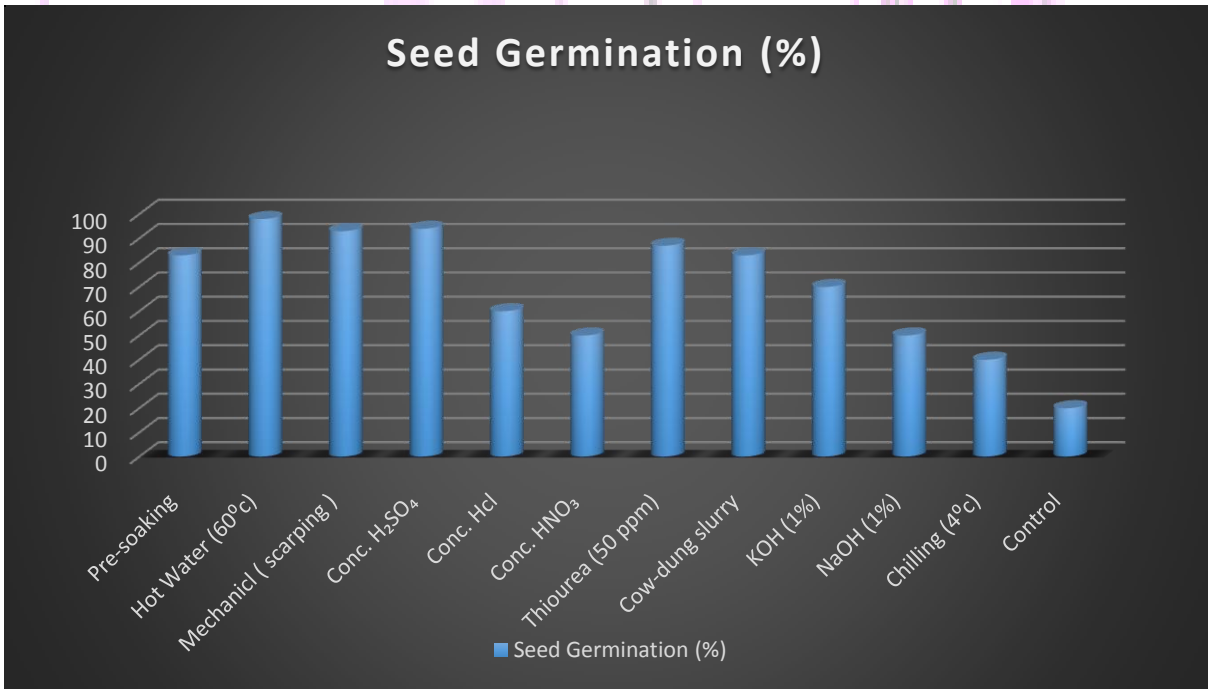
Sr. No.	Treatment	Time	Seed * germination (%)
1	Pre-soaking	12 hr 24 36	78 83 76
2	Hot water (60^oC)	5 min 15 30	92 **98** 62
3	Mechanical (Scraping)	-	93
4	Conc. H_2SO_4	0.5 min 1.5 2.0	86 **94** 63
5	Conc. HCl	0.5 min 1.5 2.0	40 60 50
6	Conc. HNO_3	0.5 min 1.5 2.0	30 50 20
7	Thiourea (50 ppm)	5 min 15 30	73 87 58
8	Cow-dung slurry	12 hr 24 36	62 83 75
9	KOH (1%)	5 min 15 30	50 70 30
10	NaOH (1%)	5 min 15 30	30 50 30

11	IAA (50 ppm)	5 min 15 30	89 **96** 92
12	IBA (50 ppm)	5 min 15 30	70 77 68
13	2-4D (50 ppm)	5 min 15 30	61 74 71
14	GA (50 ppm)	5 min 15 30	60 70 40
15	NAA (50 ppm)	5 min 15 30	30 50 40
16	Cytokinin (50 ppm)	5 min 15 30	50 60 30
17	Chilling 4^0C	12 hr 24 36	30 40 60
	Control	-	20

*

After 21 days

Effect of pre-treatments on seed germination (%) of *Ailanthus excelsa*



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