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A Preliminary Study on the Germination of *Uraria picta* (Jacq.) DC.

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Abstract

The germination response of *Uraria picta* to different treatments *viz.* water soaking for 24 h and 72 h, hot water 50 ± 2 ^{o}C and 80 ± 2 ^{o}C, conc. HCl, conc. H_2SO_4, BAP, IAA, IBA and Kinetin was investigated. The higher percentage of germination (80%) occur in conc. H_2SO_4 for 10 min and lower percentage of germination (10 %) occur in 50 ± 2 ^{0} C, 80± 2^{0} C and conc. H_2SO_4 for 5 min i.e.10 % .There was no any response on germination by the treatment of hormones and conc. HCl, water soaking for 24 and 72 h.

Key Words: Germination, acid treatment, *Uraria picta*

Abbreviations: h- hours; m- meter, mm- millimeter; min- minute; conc- concentration; C- celsius

Introduction

Uraria picta (Jacq) DC. Belongs to family Leguminosae (Papiliniaceae) tribe Desmodae. It is an annual woody erect herb reaching about 1 to 2.5 m height (Okusanya, 1991). Stem is woody at base. Leaves are simple but older leaves are pinnately compound with 2 to 5 pairs of leaflets and one always terminal. Many time, pairs of leaves occur without terminal leaflet during vegetative phase In case leaf morphovariation occur. The flowering and fruiting seasons are between August to November in the Vidarbha region of Maharashtra.

Flowers are small 35-75 in number on inflorescens axis pink or purple on dense spike like racemes which may be over 1.5 feet long. Racemes are terminal and elongated. The bracts are suprepersistent at the base and apex. The fruit contain 2-6 seed and segments are nearly separated.

Fruits are articulated, glabrous and gray in colour (Hutchinson and Dalzeil, 1958). The seeds are small light brown in colour, smooth, oblong in shape, measuring 2.5 X 1.5 mm. The medicinal uses of these plants include changing the sex of the unborn foetus and breaking up friendship and love affairs (Saunders, 1958; Lambo 1979). Its wide distribution in Maharashtra, it ranges from Western Ghats occur only at Kalakdara (Yadav and Sardesai 2000). In Marathwada only at Nanded (Naik, 1998) and Gondia districts of Vidarbha (Kahalkar, 2009). This plant is very rare in Maharashtra region. This paper mainly concentrated on various treatments and percentage of germination in *Uraria picta* seeds.

Materials and Methods

The seed were collected from different localities from August to November in 2006-2009 from a population growing in wild forest of Nagzira of Bhandara districts, Gondia (Kalakdara), Nanded (Fuggadigutta) and Botanical garden University of Pune. The seed were kept in polythene bag in dormant condition and germination was recorded in Department of Botany, Dr. Babasaheb Ambedkar Marathwada University Aurangabad. The experiment on germination in hot water 50± 2^{0} C and 80± 2^{0} C, water soaking 24 h. and 72 h. conc. HCl for 5, 8 and 10 min. H_2SO_4 5, 8 and 10 and different harmones such as BAP (6-Benzyl amino Purine), IAA (Indole-3-acetic acid), IBA (Indole-3-butyric acid) and Kinetin for 2-5 days respectively.

Treatment of Hot water

Collected seeds were kept on two layers of blotting paper in a sterile glass Petri dishes moistened with distlled water. One set of seed is considered as control. Water were taken in beaker and heated up to 50± 2^{0} C then seeds were poured in that water and after decantation of water the seeds kept for germination in Petri dishes and germination percentage was recorded. It shows 10% germination of the seeds. Water soaking treatment shows that there was no response when kept for 24 and 72 h.

Treatment of Conc. HCl

The seeds were washed thoroughly by distilled water twice, then kept in conc HCl for 5, 8 and 10 min respectively. The seeds were washed after immersing in conc HCl and kept on doubled folded blotting paper in glass Petri dishes it is observed that there is no any response or germination in conc. HCl.

Treatment of Conc. H_2SO_4

The seeds were washed thoroughly by distilled water twice then it kept in conc H_2SO_4 for 5, 8 and 10 min respectively. The seed were washed after immersing in conc H_2SO_4 and kept on double folded blotting paper in glass Petri dishes. The lower percentage of germination was observed in conc. H_2SO_4 for 5 min i.e. 10 % and highest percentage of seed germination occur in conc H_2SO_4 for 10 min i.e. 80 % whereas the 40 % seed germination occur in conc. H_2SO_4 for 8 min.

Treatment of Harmones

For this experiment IBP (6-Benzyl amino Purine) IAA (Indole-3-acetic acid), IBA (Indole-3-butyric acid), and Kinetin were used, conc. of these hormones are 72 h and 96 h (Vinaya, 1997) was taken there is no any response on percentage of germination of *Uraria picta* seed

Table.1: *U. picta* in conc H_2So_4

Sr.no.	Treatment	Soaking time In min.	Observations in days	Germination (%)
1	Control	-	-	-
2	Conc H_2So_4	05	06	10
3	Conc H_2So_4	08	05	40
4	Conc H_2So_4	10	03	80

Table.2: *U. picta* in Conc HCl.

Sr.no.	Treatment	Soaking time In min.	Observations in days	Germination (%)
1	Control	-	-	-
2	Conc HCl	05	10	00
3	Conc HCl	08	10	00
4	Conc HCl	10	10	00

Table.3: *U. picta* in hot water and water soaking

Sr.no.	Treatment	Soaking time	Observations in days	Germination (%)
1	Control	-	-	-
2	Water soaking	03 days	06	00%
3	Water soaking	05 days	05	00%
4	Hot water	03 days 50 ± 2 ^{0}C	03	10%
5	Hot water	05 days 80± 2^0 C		10%

Results

Germination percentage made by the analysis of various observations after the percentage data (Clarke, 1980) there was a good germination in conc. H_2SO_4 for 10 min. (80 %) and lower percentage of germination (10 %) occur in conc. H_2SO_4 for 5 min. and 8 min. 40 % germination (Table. 1; Fig. A.), hot water treatment was lower percentage of germination 50 ± 2 ^{0} C, 80± 2^0 C only 10 % (Table.2; Fig. B). It is observed that there is no response due to conc. HCl (Table. 2). On the different conc. of harmones (Okusanya and Ungar, 1983) for 3 and 5 days shows no any response on germination of *Uraria picta* seeds.

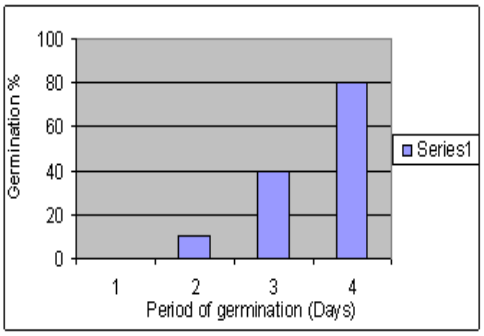

Fig. A. Germination of Uraria picta in Conc. Sulphuric acid (H_2SO_4)

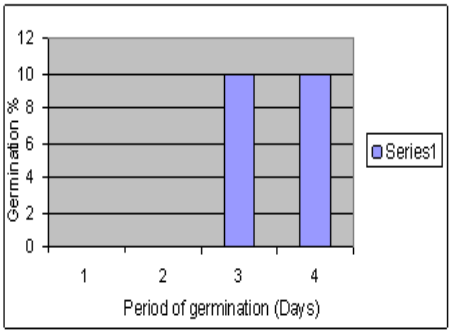

Fig. B. Germination in Hot water and Water soaking

Discussion

The present result indicated that the treatment of chemical scarification with sulphuric acid at different timings generally increase the percentage of seed germination in relation to seed without it. Therefore the evaluated treatments increases the germination of seeds of *Uraria picta* Similar trends were found by (Alderate-chavez and Rodriquez, 2005) in *Lupinus leptophyllus* similarly hot water treatment maintaining temperature at 50 ± 2 ^{0}C for 3 days and 5 days to different taxa of *Alysicarpus* (Dhabe, 2003) When treatment of hormones IAA, BAP, IBA and kinetin at 4000 ppm concentration at 30 min to 3 days there was not response on the germination and water soaking for 3 days and 5 days respectively. There was no any response on the germination of *Uraria picta* seed.

The result shown fig A indicates that germination of seed treatment of H_2SO_4 (Sulphuric acid) and fig. B. germination of seed hot water and water soaking treatment. In conclusion the

germination response of this species appears to be of ecological significance and to be linked to the plants distribution in Maharashtra.

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