

EFFECT OF THIOUREA ON GERMINATION POTENTIAL OF SOME WILD LEGUMES

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Key words : Thiourea, germination potential, wild legumes.

In thiourea treated seeds, better response of germination was shown by *Melilotus indica* and *Medicago lupulina*. In other wild legumes, the response was negative.

INTRODUCTION

The role of growth substances on germination has received wide attention (Sahay *et al.*, 1980; Singh *et al.*, 1984). Extensive literatures on GA₃ and Cytokinin are available on germination (Sharma and Tayal, 1984; Sharma and Sen, 1974). The present investigation was taken to observe the role of thiourea, a growth regulator, on breaking seed dormancy of some wild legumes.

MATERIAL AND METHODS

The materials for present investigation were selected as *Medicago lupulina*, *Medicago denticulata*, *Melilotus indica*, *Melilotus alba*, *Indigofera linnaei*, *I. astragalina*, *I. linifolia* and *I. glandulosa*. The work was done in the Department of Botany, Patna Science College.

Seeds were washed and kept for germination on moist filter paper, backed with cotton wool, in petridishes of 9 cm diameter. Each experiment was replicated thrice and separate controls were maintained. To get scarified seeds, they were pricked mechanically or by conc. H₂SO₄ for variable durations. Seeds of all the selected species have seed coat dormancy and therefore they required scarification.

Effect of thiourea in breaking dormancy was judged by surface sterilizing the unscarified and scarified seeds and keeping them over moist filter paper. Moistening was done either with distilled water, as in control, or with the desired concentration of thiourea for 12h only.

Seeds with visible emergence of radicle were considered as germinated. Final germination potential was scored after every 24 hour till 168 hour.

RESULTS AND DISCUSSION

Seeds of all species selected showed seed dormancy. In control, *I. linnaei* showed 18%, *I. linifolia* 3%, *I. astragalina*, and *Medicago denticulata* 8%, *Melilotus alba*, *M. indica* and *M. lupulina* 10% germination.

Unscarified seeds of *Medicago denticulata* didn't respond. While *M. lupulina* responded negatively. Scarified seeds of *M. lupulina* did better as against *M. denticulata*, although the trend was inhibitory.

Scarified seeds of *M. indica* treated with thiourea (30-40 ppm) for 12 hr. germinated upto 96%. Unscarified seeds of this species also responded and germination was 30% in 20 ppm concentration.

Scarified seeds of *M. alba* responded negatively to any of the concentrations. Unscarified seeds didn't germinate. The result showed the better response of *M. indica* towards thiourea while *M. alba* showed inhibitory trend.

Unscarified and scarified seeds of *I. linnaei* and *I. astragalina* showed trends of inhibition. In *I. linifolia*, unscarified seeds responded less favourably while scarified seeds 80% germination in 10-20 ppm conc. although the trend was inhibitory. Unscarified seeds of *I. glandulosa* showed slight increase (20% in 30% conc. of thiourea).

In thiourea treated seeds, better response was shown by *M. indica* and *M. lupulina*. Their stimulatory effect can be collaborated with the findings of Tripathi and Srivastava, 1970 Singh and Trivedi, 1987 and Sinha and Kumar, 1987, Hosseini *et al.*, 2011, Scuttle, 2008). The promotive and inhibitory trend due to thiourea may be ascribed to its action at multiple sites (Sinha *et al.*, 1991).

TABLE - 1: Effect of thiourea on Germination percentage

Concentration (in ppm)		Species															
		<i>I. astragalina</i>		<i>I. glandulosa</i>		<i>I. linifolia</i>		<i>I. linnaei</i>		<i>M. lupulina</i>		<i>M. denticulata</i>		<i>M. alba</i>		<i>M. indica</i>	
		UnSC	SC	UnSC	SC	UnSC	SC	UnSC	SC	UnSC	SC	UnSC	SC	UnSC	SC	UnSC	SC
Thiourea	Control	08	100	10	100	03	88	18	88	10	100	08	50	10	100	10	92
	10	14	75	10	80	10	80	14	10	08	65	05	40	-	10	10	75
	20	08	70	15	80	10	80	08	10	05	50	05	40	-	10	30	85
	30	10	60	20	60	08	65	06	10	-	50	10	35	-	10	25	96
	40	6	50	10	50	06	60	02	05	-	60	10	35	-	08	12	96
	50	5	44	5	40	06	50	01	05	-	65	05	35	-	05	10	70

UnSC = Unscarified SC = Scarified

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