RESEARCH NOTE | *International Journal of Plant Sciences,* (January to June, 2010) Vol. 5 Issue 1 : 393-394

# Germination improvement through alleviation of seed hardness in *Solanum viarum* Dunal

K. RAMAMOORTHY, R. GEETHA AND K. SUJATHA

*Accepted : August, 2009*

**Key words :** Seed hardness, Germination, *Solanum viarum*

*Solanum viarum*, a member of Solanaceae family, is a hardy, bushy, stout and much branched shrub. The berries of *S. viarum* are rich source of solasodine (Maiti *et al.*, 1964) a phytosteroids used in the pharmaceutical industry, for synthesis of contraceptives, corticosteroids and sex hormones. Some of these steroids also used in the treatment of rheumatoid, arthritis and rheumatoid fever (Kunjithapadam, 1962). *S. viarum* is propagated through seeds and fresh seeds exhibits dormancy due to hard seed coat (Akanda *et al.*, 1996). Hence, studies were initiated to minimize the hard seedness.

Fresh seeds of *S. viarum* were collected from the fully matured fruits and subjected to scarification using commercial sulphuric acid @ 25ml / kg of seed for varying durations of 5,10,15,20 and 25 min. Seeds were washed four times with water to remove the traces of acid and dried under shade. Scarified seeds were evaluated for germination (ISTA, 1999), root and shoot length, dry matter production and vigour index values (Abdul- Baki and Anderson, 1973). Data were analysed following Snedecor and Cochran (1967).

Fresh seeds without scarification did not germinate. Pingle and Dynansagar (1980) reported dormancy of seeds for an average period of one month and Mullahey *et al*. (1993) recorded enhanced germination in *S. viarum* through mechanical scarification..

In the present study scarified seeds recorded the highest germination percentage (Table 1) when scarified with sulphuric acid for 10min (80%) followed by 15min (60%). The root and shoot length (4.3 and 4.5cm, respectively), dry matter production (0.034 mg) and vigour index values (704) were also the highest at 10 min scarification compared to other treatments. Sulphuric acid scarification beyond 15min was injurious and caused reduction in germination and seedling growth.

Hence, scarification with commercial sulphuric acid

**Table 1 : Effect of scarification in alleviating seed hardness in *Solanum viarum***

| Treatments | Germination (%) | Root length (cm) | Shoot length (cm) | Dry matter production | Vigour index |
|---|---|---|---|---|---|
| Control | 0 | 0 | 0 | 0 | 0 |
| | (5.73) | (0.70) | (0.70) | (0.70) | (0.70) |
| $H_2SO_4$- 5min | 45 | 3.3 | 3.5 | 0.012 | 306 |
| | (42.13) | (1.82) | (1.87) | (0.109) | (17.49) |
| $H_2SO_4$- 10min | 80 | 4.3 | 4.5 | 0.034 | 704 |
| | (63.43) | (2.07) | (2.12) | (0.184) | (26.53) |
| $H_2SO_4$- 15min | 60 | 3.8 | 4.1 | 0.025 | 474 |
| | (50.76) | (1.95) | (2.02) | (0.158) | (21.77) |
| $H_2SO_4$- 20min | 50 | 3.2 | 3.3 | 0.012 | 325 |
| | (45.00) | (1.78) | (1.81) | (0.130) | (18.03) |
| $H_2SO_4$- 25min | 40 | 3.0 | 3.2 | 0.010 | 248 |
| | (39.23) | (2.0) | (1.78) | (0.100) | (15.74) |
| S.E. $\pm$ | 0.57 | 0.03 | 0.04 | 0.004 | 0.03 |
| C.D. (P=0.05) | 1.23** | 0.06** | 0.08** | 0.008** | 0.07** |

Values in parenthesis are transformed values
** indicates significant of value at P=0.01

**Correspondence to:**
**K. RAMAMOORTHY,** Seed Science and Technology Unit, Department of Plant Breeding and Genetics, Agricultural College and Research Institute, MADURAI (T.N.) INDIA
**Authors' affiliations:**
**R. GEETHA AND K. SUJATHA,** Seed Science and Technology Unit, Department of Plant Breeding and Genetics, Agricultural College and Research Institute, MADURAI (T.N.) INDIA