

RESEARCH HIGHLIGHTS

Farmyard Manure; An Efficient Way of Improving Seedling Growth of *Tamarindus indica*

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Tamarind which is scientifically known as *Tamarindus indica* is a leguminous tree that belongs to the family Fabaceae. This is fundamentally a tree of tropical climate regions that can flourish best under a maximum annual temperature ranging from 33-37°C to a minimum of 9.5-20°C¹.

Seed germination is considered a vital and susceptible stage in the life cycle of terrestrial angiosperms which determines the seedling establishment as well as plant growth². However, in some cases, seeds are unable to germinate though they have a favorable condition, known as dormancy³. This phenomenon hinders efficient nursery management and plantation establishment⁴. For this reason, dormant seeds should be pre-treated to break dormancy and achieve effectual germination.

Tamarind is regarded as a multipurpose tree with versatile uses. It is considered as a component of agroforestry as it possesses nitrogen-fixing ability. Moreover, it can also tolerate infertile soil as well as erosion⁵. Also, the heartwood of this tree is very resilient and employed in furniture making⁶. Furthermore, its medical value can't be denied as well. Accordingly, its fruit is utilized to treat intestinal diseases, fever, and malarial fever as well as scurvy⁷. Tamarind pulp is also a well known and effective medicine for paralyzed people to restore sensation and to treat painful and wounded throats⁸.

Accordingly, a new experiment was designed for assessing the effects of different treatments on seed germination and seedling growth performance of *T. indica* in the nursery⁹.

In this research, seven treatments were involved, including control, soaking seed in hot water treatment 100°C for 5 and 10 min, soaking seeds in cold water for 48 h, soaking seeds in farmyard manure for 48 h, soaking seeds in concentrated H₂SO₄ for 3 min as well as cracking of seeds⁹.

At the end of this experiment, scientists recommended soaking with farmyard manure for 48 hours in addition to conc. H₂SO₄ for three minutes as this treatment was found to possess the ability to stimulate the germination percentage, biomass production, seedling growth, seedling quality indices in comparison with other treatments. Hence, acid treatment may be recommended for maximum seed germination and quality seedling production programs.

Conclusively, considering the risk of employing conc. H₂SO₄, seeds soaked in farmyard manure for 48 h are the superior alternative for seed germination as farmyard manure is pocket-friendly, easy to apply and possesses no damaging effect on the human body.

REFERENCES

1. Rahim, M.A., A.K.M.A. Alam, M.S. Alam and M.M. Anwar, 2011. Underutilized Fruits in Bangladesh. BAU-GPC., Bangladesh Agricultural University, Bangladesh, pp: 205.
2. Saeb, H., M. Khayyat, A. Zarezadeh, F. Moradinezhad, A. Samadzadeh and M. Safaee, 2013. Effects of NaCl stress on seed germination attributes of periwinkle (*Catharanthus roseus* L.) and corn poppy (*Papaver rhoeas* L.) plants. Plant Breed. Seed Sci., 67: 115-123.
3. Silveira, F.A.O., R.C. Ribeiro, S. Soares, D. Rocha and C. Oliveira, 2013. Physiological dormancy and seed germination inhibitors in *Miconia* (Melastomataceae). Plant Ecol. Evol., 146: 290-294.
4. Hossain, M.A., M.K. Arefin and M.A. Rahman, 2005. Effect of seed treatments on germination and seedling growth attributes of Horitaki (*Terminalia chebula* Retz.) in the nursery. Res. J. Agric. Biol. Sci., 1: 135-141.
5. Das, D.K. and M.K. Alam, 2001. Trees of Bangladesh. Bangladesh Forest Research Institute, Chittagong, Bangladesh, Pages: 224.
6. Hossain, M.K., 2015. Silviculture of plantation trees of Bangladesh. Arannayak Foundation, Dhaka, Bangladesh.
7. Timyan, J., 1996. Bwa yo: Important Trees of Haiti. South East Consortium for International Development (SECID), Washington, DC.
8. Chaturvedi, A.N., 1985. Firewood farming on the degraded lands of gangetic plain. Uttar Pradesh Forest Bulletin No. 50, Government of India. Press, Lucknow, pp: 286.
9. Mozumder, S., B.M. Khan and M.R. Rahman, 2018. Pre-sowing treatments for improved germination and growth performance of *Tamarindus indica* L. in Bangladesh. Asian J. of Biol. Sci., 11: 120-129.