In-vitro and *in-vivo* Seed Germination Percentage of *Typha angustifolia*

K.P.K. Madushani[1], M.D. Amarasinghe[2], R.M.C.S. Ratnayake[3], D.D.G.L. Dahanayaka[4]

Typha is a cosmopolitan genus and *T. angustifolia* is considered an alien invasive plant species in Sri Lanka. Extensive distribution of *T.angustifolia* is observed in Bundala wetland complex during the recent past. Seed germination is an important process that contributes to plant distribution and invasiveness. Therefore, this study aimed to investigate the *in-vitro* and *in-vivo* seed germination of *T.angustifolia* seeds to evaluate the percentatge seed germination of *Typha* seeds. *Typha* seeds were collected from Bundala wetland complex, Hambantota, Sri Lanka (6°12′50″N; 81°13′30″E) during the South West monsoon windy season (seed dispersing period). *Typha* seeds were cleaned with distilled water and settled in distilled water to select the most viable seeds, which sink to the bottom of the container, whereas non-viable seeds float. Seed viability was tested by placing 50 seeds on cavity slides with 3% 2,3,5-triphenyltetrazolium chloride (TTC) solution and percentage seed viability was calculated after incubating in dark for 8 hours. For the seed germination test, 50 seeds were placed on a layer of Whatman grade no. 1 filter paper (pH 7) in 90mm petri dishes and watered weekly. Seed was counted as germinated when the radical reached 2 mm. For seedling emergence test, 50 seeds were sown in lagoon soil in trays at 0.5 cm depth, which were collected from Bundala wetland complex and they were weekly irrigated with distilled water. A seedling was considered emerged when the hypocotyl was fully erect. All tests were replicated 5 times. Finally the percentage seed germination and percentage seedling emergence were calculated. Results indicate that there is a significant difference ($p<0.05$) between seed viability in TTC test and seed germination in petri dishes/ seedling emergence in soil trays. TTC test resulted in 87.2±7.2% seed viability, but only 51.2±2% of seedlings germinated in soil trays. Seedlings were emerged after 2 to 3 weeks of sowing. However radicals were failed to appear in petri dishes. Therefore, results conclude that even though *T.angustifolia* bear numerous viable seeds they show moderate percentage seed germination in wetland soils. It may be due to seed dormancy and further investigations are recommended to evaluate the effect of seed dormancy on distribution of *T. angustifolia.*

Keywords: "*Typha* seeds; seed viability; germination; seedling emergence, invasive plants"

[1] Department of Plant and Molecular Biology,University of Kelaniya, Kelaniya, Sri Lanka, *kpkmadushani@gmail.com*
[2] Department of Plant and Molecular Biology,University of Kelaniya, Kelaniya, Sri Lanka
[3] Department of Plant and Molecular Biology,University of Kelaniya, Kelaniya, Sri Lanka
[4] Department of Zoology, The Open University of Sri Lanka, Nawala, Sri Lanka