

Factors limiting seed germination in *Scyphiphora hydrophyllacea* Gaertn f. and *Pemphis acidula* J.R. & Forst

Scyphiphora hydrophyllacea is a highly threatened true mangrove confined to Jaffna and a single locality in Kalpitiya. *Pemphis acidula* is restricted to small pockets in few coastal areas. Both produce fruits and seeds nevertheless, seedlings were not observed in their natural habitats. Factors governing seed germination in these two species were studied. For all experiments, randomly collected ripe seed samples were used within two weeks of collection. Moist filter paper method was used and daily observations were recorded.

In *P. acidula*, seed production was 100%. Percentage of fruits bearing seeds was 10% in *S. hydrophyllacea*, but none of them gave rise to healthy seedlings. Seed germination of both species was 0% in water collected from respective natural habitats. In *P. acidula* it was 35% in 75% and 40% in 87.5% dilution of water from natural habitat. In distilled water, 65% of the seeds germinated. Continuous washing of seeds in running tap water increased percentage germination to 75%.

Dormancy breaking treatments such as heat treatment, seed nicking, acid base treatment, cold treatment and treatment with gibberellic acid did not increase germination above normal 65% value.

Exposure to natural light, photoperiod and oxygen level also affected seed germination. Analysis of data was done at 5% level of statistical significance using Minitab package. In *P. acidula*, salinity of soil water (up to 34 ppt) and salt deposits on seed coat seem to be major causes hindering seed germination in natural habitat. Seeds buried in sand may also not receive adequate amount of light. Oxygen concentration may not be enough when the ground is covered with water during tides. Lack of seedlings may therefore be due to lack of seed germination under natural condition.

In *S. hydrophyllacea*, very low percentage of seed bearing fruits and inability to produce healthy seedlings explain why it has become highly threatened. Production of large number of seedless fruits and inability to produce normal seedlings could be due to genetic disorder in seeds,

which is a very common phenomenon known as inbreeding depression in isolated, small populations.

Presence of self-sterility and the absence of pollinator might be some other reasons. Hence, studies on the possibility of propagating *S. hydrophyllacea* by vegetative means are urgently needed to conserve this highly threatened tree species.