INVESTIGATION OF COST EFFECTIVE SEED PROPAGATION METHODS FOR THE MEDICINAL LIANA *Coscinium fenestratum* Colebr. (Menispermaceae)

R M M M Bandara[1], K U Tennakoon[2] and C V S Gunathilleke[2]

[1]Sabaragamuwa University of Sri Lanka, Buttala
[2]University of Peradeniya, Peradeniya

Coscinium fenestratum colebr. (Menispermaceae) is a widely used medicinal liana in Sri Lanka and South Asian region. Due to heavy and indiscriminate harvesting from natural populations, this species is endangered in Sri Lanka. In order to reduce the pressure on natural populations, we attempted to develop rapid and cost effective seed germination methods to raise new plants for restoration and rehabilitation programs.

Seeds of *C. fenestratum* showed all hallmarks of "recalcitrant" seed characters. Considering there initial moisture content and moisture losses. The moisture content of fresh seeds was 31 ± 0.6 %. The best method to conserve moisture content of seeds above 25% during storage was by maintaining them in a humid chamber. The viability of seeds decreased progressively with storage time and the associated moisture loss. Forty days after storage, the highest viability (89%) was recorded when seeds were stored in a moisture chamber while the least viability (30%) was recorded when seeds were stored under ambient conditions. Sixty two percent of seed viability was shown when seeds were stored in polythene bags while the viability was 41% when seeds were stored in paper bags.

Bioassays carried out using seeds of *Brassica junceae* revealed the presence of germination inhibitors in the endosperm and the embryo of *C. fenestratum* seeds. Germination percentage of *B. junceae* seeds (used as an indicator to check the inhibitory action of *C. fenestratum* seed) soaked with the water extracts of the endosperm and the embryo of *C. fenestratum* were 17% and 25% respectively. *B. junceae* seeds showed 88% germination percentage in the control experiment where the seeds were soaked in water.

In order to evaluate the best seed treatment method that enhance the germination success, fresh seeds were subjected to soaking in a range of gibberllic acid solutions (1500 ppm, 2000 ppm, 2500 ppm and 3000 ppm) for 12 hours, mechanical cracking of the seed coat, soaking in tap water for 12 and 24 hours and exposure to sunlight followed by soaking in tap water for 12 hours. The highest germination percentage (27%) was shown when seeds were soaked in 2000 ppm gebberllic acid for 12 hours. In all other treatments the percentage germination was less than 10%.