

SEED DORMANCY AND GERMINATION OF A MEDICINAL VINE, *CARDIOSPERMUM HALICACABUM*

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Cardiospermum halicacabum L. (Sapindaceae) is a commonly used medicinal vine in Sri Lanka, despite the fact of its' identification as a noxious weed in many countries. Traditionally, it has been used as an indigenous medicine extensively in Sri Lanka as well as in Asian and African countries. Information on seed biology is important in propagating economically and ecologically important plants. Available information on seed biology of *C. halicacabum* is scanty and contradictory. Hence, the main objective of this study was to identify the storage behavior, dormancy and germination of seeds of *C. halicacabum*.

Mature seeds were collected from numerous vines in Puttalam (low-country dry zone, LCDZ) and Peradeniya (mid-country wet zone, MCWZ), stored in labeled bags and brought to the Department of Botany, University of Peradeniya. Experiments were initiated within a month from the collection. Moisture contents (MC) of untreated, dispersed and desiccated (3, 5, 7, 14 and 21 days for MCWZ and 21 days for LCDZ) seeds were determined. Germination (in light/dark [14 hr/10 hr] and in complete darkness) and imbibition of intact-untreated, manually scarified (MS) and desiccated seeds were studied. Hand sections of the seed coat were observed. Effect of artificial treatments on dormancy break was evaluated. Move along experiment was used to determine the temperature requirements to break seed dormancy. All the experiments were conducted in a completely randomized design. Three replicates of 15 or 25 seeds were used for each experiment.

MC of fresh *C. halicacabum* seeds were < 10 % revealing that seeds are orthodox. Intact and manually scarified seeds germinated and imbibed to the same extent showing that they do not have physical dormancy (PY). However, when seeds were desiccated to a lower moisture contents (< 6.5 %) they did not imbibe, i.e. PY was developed. Seed coat of *C. halicacabum* has a palisade layer with a light line. Thus, it can be concluded that *C. halicacabum* seeds have the potential to develop PY. Deep cut + GA₃ (100 ppm) treatment gave the highest germination percentage for both DZ and WZ seeds. Only deep cut treatments have increased the germination percentage significantly compared to the control treatment of LCDZ seeds. The MS + GA₃ 500 ppm and MS + GA₃ 100 ppm treatments have increased the germination of MCWZ seeds. These observations revealed that *C. halicacabum* seeds have non-deep – intermediate physiological dormancy (PD). Move along experiments showed that LCDZ and MCWZ seeds have different temperature requirements to break PD. DZ seeds require high temperature conditions (35 °C), while MCWZ seeds require low temperature conditions (15 °C) to break PD. It can be concluded that orthodox seeds of *C. halicacabum* have non-deep to intermediate PD and also have the potential to develop PY under certain conditions. Further, seeds collected from different agro-climatic zones have different temperature requirements for breaking dormancy.