

## Enhancement of seed germination by pre-plant treatments of *Cyrtostachys renda* (Red palm)

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### Abstract

Red palm (*Cyrtostachys renda*) is an eye-catching palm variety, which can be used outdoor and indoor. This wonderful plant has continued demand in Sri Lankan landscaping sector in the last few decades because of its attraction with characteristically bright red leaf sheaths around the stems. The seeds of red palm show an uneven and long germination period, therefore, the present study was aimed at assessing the effect of different seed treatments on seed germination of *C. renda*. The experiment was conducted in Henarathgoda Botanical Garden Gampaha from July 2018 to January 2019. Completely Randomized Design (CRD) was used with five replicates each contain 10 seeds. Seed soaked in water (T1-control), soaked in hot (40 °C) water for three days (T2), soaked in 1% KMnO<sub>4</sub> for three days and added 1% KMnO<sub>4</sub> on weekly basis (T3), soaked in 1% KMnO<sub>4</sub> for three days (T4), soaked in 1% KMnO<sub>4</sub> solution per 36 hours followed by soaked in 1.5% H<sub>2</sub>O<sub>2</sub> solution for 36 hours (T5), soaked in a 1.5% H<sub>2</sub>O<sub>2</sub> solution for three days (T6) and soaked in 20 ppm GA3 solutions for three days (T7) applied as treatments. Germinated seeds were counted weekly up to 24 weeks after seeds sowing. According to the results, T7 had the significantly earliest (14<sup>th</sup> weeks after seed sowing) and significantly the highest germination percentage (72% in 23<sup>rd</sup> weeks after the sowing of seeds). The seeds treated with T5, T2 and T6 shown a 22% of germination percentage as their highest value while seed treated with T3 and soaked in T4 given 12%, 8% of germination percentage as highest value respectively. Further, the lowest seed germination percentage (6% in the 24<sup>th</sup> weeks after seed sowing) was recorded from the seeds in control. Thus, the present study is revealed that GA3 20 ppm treatment has enhanced seed germination by increasing germination percentage and reducing the germination period. Therefore, GA3 20 ppm is considered as an applicable seed treatment for *C. renda*.

**Keywords:** *Cyrtostachys renda*, GA3, Seed germination, Seed treatment

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