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Reproductive biology towards the conservation of *Securidaca longepedunculata* Fresen. in
the Nylsvley Nature Reserve, Limpopo Province, South Africa

By

Tiawoun Makuété André Patrick

Student number: 11638448

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Department of Botany
School of Mathematical and Natural Sciences

University of Venda, South Africa

Private Bag X5050

Thohoyandou

0950

Supervisor: Mr. Ligavha-Mbelengwa MH

Co-supervisor: Prof. Tshisikhawe MP

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ABSTRACT

Securidaca longepedunculata (Polygalaceae) is a tree with beneficial attributes, valued by the population for its various uses. The immense value offered for its roots in Limpopo Province, has resulted in over-exploitation. Despite its poor reproduction coupled with over-exploitation, and its economic and ecological importance, almost all research has focused on its medicinal aspects; there is little attention from scientific to reproduce this species even though in protected area, the presence of this species does not guarantee its conservation. The objective of the study was to investigate the sexual and asexual reproduction of *S. longepedunculata* under field, laboratory and greenhouse conditions in order to evaluate seedling growth. But before this objective, several reproductive attributes, such as seed dispersal, seed dormancy, seed viability and seed germination were investigated in attempt to identify some factors limiting the reproductive ability of this plant. Different pre-treatment protocols, namely coat removal; sulfuric acid; gibberellic acid; boiled water; cold water and control were tested for their efficacy to break the hard seed coat of this tree. Another trial was conducted to assess the reproduction via branch air-layering and root suckering. The results showed that, pre-treatments of seeds have positive effects on the germination percentage and seedling growth. The highest germination percentage was obtained in greenhouse by coat removal pre-treatment (90%), whereas boiled water did not give any positive results (0%). It is fascinating to know that root-cutting *in situ* (roots disconnected from parent tree) also promoted the development of seedlings with about 80% of suckers' growth. The data were subjected to statistical analysis using ANOVA. Based on the results, it is concluded that through this research, sexual and asexual reproductions have promoted the availability of *S. longepedunculata*.

Key words: Reproduction; Conservation; *Securidaca longepedunculata*; Nylsley Nature Reserve; Limpopo Province.