

## **Abstract**

*Calotropis procera* has a great potential for domestication and commercialization in Kenya for fibre production. However, the shrub experiences dieback condition caused by unidentified fungi. This makes it difficult to prevent dieback during cultivation, a situation that may lead to low productivity and financial losses. This study determined dieback prevalence, severity and causative agents among naturally growing *Calotropis procera* in the semi-arid regions of Kenya. A repeated measure research design was used. Purposive sampling technique was used in selecting Tharaka and Makueni as study sites. Simple and systematic random sampling techniques were used in developing main and sub plots, respectively. Simple random sampling technique was used in selecting 16 cuttings from each block for laboratory analysis. In the laboratory, specimens were obtained from samples, sterilized, rinsed, blotted and incubated at 23°C followed by observation of spores under a Microscope. Mixed analysis of variance (ANOVA) and 2\*4\*6 factorial ANOVA using SPSS version 25 was used in analysis. There were significant differences in dieback prevalence and severity at different time points with the highest prevalence (78.56%) and severity index (3.54) reported in (September-November) 2019. *Fusarium* was the dominant dieback causative fungi with dominance ranging from 32.29% to 43.38%. In conclusion, the study established that naturally growing *Calotropis procera* stands in semi-arid regions of Kenya experience dieback throughout the year though at varying levels.