**Abstract**

In Kenya, spider plant (*Cleome gynandra* L.) has gained popularity among consumers due to its nutritional and medicinal values. In the local markets, bundles of leafy shoots as well as uprooted young plants are offered at fairly high prices in many parts of Kenya. Existing evidence suggests that spider plant is endowed with higher level of nutrients than its exotic counterparts. The leaves contain over and above the normal recommended adult daily allowance of vitamins A and C, calcium and iron. However, quality of spider plant seed is affected by one or more factors that cause negative response during seed handling and storage. The purpose of this research was to increase insight into how the seed quality of spider plant is affected by different packaging containers, seed moisture content and storage temperatures, with a view to finding out the optimal method of packaging and storing of these seeds. This study was carried out using seeds dried above silica gel to four target moisture levels: 20%, 10%, 5% and 2% moisture content. Dried seeds were sealed in aluminum foil packets and polyethylene packets and stored at three storage temperatures: ambient (22oC to 30oC), 5oC and minus 20oC for three and six months. After each storage period, seed samples were drawn and viability and vigour tests carried out. Data sets were factorially combined and subjected to Analysis of Variance (ANOVA) and descriptive analysis. Means separation was by Least Significance Difference (LSD).Levels of significance, means and standard deviations were obtained for various data sets. Seed stored for six months at 5% moisture content and minus 20oC recorded the highest seed quality. There were no significant differences between seeds packaged in aluminum foil packets and polyethylene packets. In this study, a germination of 85% was recorded for seed dried to 5% moisture content and stored at room temperature. Therefore, on the basis of these findings, farmers can dry their seeds at about 5% moisture content, package them in polyethylene (since readily available) and store at room temperatures for six months.