

ABSTRACT

African indigenous leafy vegetables (AILVs) contribute significantly to improved nutrition, food security and income. However, the potential to meet the growing demand for AILVs in Kenya has not been satisfied. This study was conducted between August, 2015 and April, 2016 to evaluate the effect of different agronet colours on growth and yield of African nightshade and spiderplants. The experiment was a 2x5 factorial laid on a randomized complete block design (RCBD), with three replications. Factors under study were vegetable types (African nightshade and spiderplant) and net covers (white, grey, blue, yellow net and open field). Spiderplant seeds were direct seeded and later thinned to a spacing of 30 cm by 30 cm. African nightshade seeds were started in the nursery and later transplanted five weeks after sowing. From the 7th weeks after planting (WAP) and at two weeks interval, plant height, primary branches, stomatal conductance, chlorophyll and leaf fresh yield were determined. Use of blue net significantly yielded taller plants of African nightshade (29.6%) compared to those in the open field by 13 WAP. Spiderplant were taller under white net (20.7%) and shorter under blue net (20.95%) compared to open field by 13 WAP. Yellow and white net enhanced primary branching of African nightshade and spiderplant, respectively while blue net exhibited the least for both vegetables. Days to first and 50% flowering was delayed under blue net by 13 and 6 days compared to control for spiderplant and African nightshade, respectively. Yellow and white net improved stomatal conductance for African nightshade and spiderplant, respectively. Regarding chlorophyll content, yellow and blue net had the highest concentration of chlorophyll a and b for both vegetables. Use of yellow net improved total fresh leaf yield by 15.82% and 12.42% compared to open field for African nightshade and spiderplant, respectively. Blue net significantly reduced total yield compared to open field for both vegetables. This study shows blue net cover has the potential to prolong the vegetative phase of these crops hence longer harvesting time of these crops and that yellow net has a greater potential to be used for production of African nightshade and spiderplant. However, a cost benefit analysis study should be done to assess the beneficial effect of yellow net over open field.

Keywords: African leafy vegetables, protected cultivation, light quality, phytochrome, cryptochromes, chlorophyll