Abstract
The measures for *Striga* management are hindered by unique survival strategy of the weed, whereby it produces large amount of seeds. Therefore, prevention of build up of the *Striga* seed bank through cultural practices remains an essential component in *Striga* control. The influence of organic and inorganic fertilizer on *Striga* reproduction and sorghum grain yield was studied for two consecutive years (2009/2010 and 2010/2011) at Hombolo Research Station-Dodoma, Tanzania. Four fertilizer types: farmyard manure (5.9 tons/ha), chicken manure (2.5 tons/ha), urea (50 kg N/ha) and triple superphosphate (TSP) (40 kg P/ha) were used. The experimental design was randomized complete block design replicated four times. *Striga* plants supplied with chicken manure, urea and TSP had significantly fewer capsules per plant than farmyard manure treated and control (without fertilizer application) plants. Where TSP fertilizer was applied there was high *Striga* plant density, increased intra-specific competition and consequently reduced *Striga* biomass and capsules number per plant. In plots where chicken manure was applied sorghum plant height, above-ground biomass, mean panicle length and grain yield relative were higher compared to all other treatments. Urea, TSP, and farmyard manure did not significantly affect sorghum growth and yield parameters. *Striga* biomass and numbers were negatively correlated with sorghum grain yield. Based on this study, urea and chicken manure have the potential to reduce *Striga* reproduction. Even though a fertilizer plays a significant role in *Striga* reproduction, the use of fertilizer alone is not enough to reduce the *Striga* seed inputs and longterm effect on seed bank. Chicken manure can be used to improve sorghum production.