

T-010 a novel compound for induction of suicidal germination of *Striga hermonthica*
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Abstract: Root parasitic weeds of the genus *Striga* cause enormous losses in crops yield and are a serious constraint to agriculture in Africa. After-ripened conditioned *Striga* seeds only germinate in response to exogenous stimulants. In nature the stimulants, strigolactones (SLs), are exuded by the roots of host and some non-host plants. The naturally occurring SLs, strigol, sorgolactone, alectrol and orobanchol were isolated from cotton, sorghum, cowpea and red clover, respectively. Many synthetic SL analogues including GR24 and Nijmegen 1 were developed. Based on strigolactone structure, carbamates, phenylacrylonitriles, phenyliminoacetonitriles, and phosphonates analogues were designed and synthesized as novel SL analogues. The carbamates, phenylacrylonitriles and phenyliminoacetonitriles analogues showed high germination inducing activity on seeds of *S. hermonthica*. However, the phosphonates analogues were less active. Among the compounds tested T-010 was the best and was selected, on basis of high *in vitro* efficacy and ease of preparation, as a compound of potentials for luring seeds of root parasitic weeds into suicidal germination. Evaluation of formulated T-010 in a pot experiment is in progress at SUST. An observation made 49 days after sorghum sowing showed that the number of emergent *S. hermonthica* was 11 and 77 per pot in the treated and untreated crop, respectively. Culm length of sorghum was 47 and 34 cm, respectively. These differences are statistically significant, indicating effectiveness of the formulated T-010 in reducing damage caused by the parasite under greenhouse conditions. Evaluation of the formulation in the field is under way.

Keywords: strigolactones, carbamates, phenylacrylonitriles, phenyliminoacetonitriles, phosphonates