

## Practicality of the suicidal germination approach for controlling *Striga hermonthica* (Delile) Benth.

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**Summary** Purple witchweed (*Striga hermonthica* (Delile) Benth.), Orobanchaceae, is an obligate root parasitic weed of important cereal crops. The parasite is a copious seed producer and a huge seed bank develops soon after the onset of the initial infestation. To germinate a *Striga* seed requires a pre-treatment in a moist warm environment and a subsequent exposure to an exogenous stimulant. One approach to reduce the seed bank is to artificially induce germination of the seeds in the absence of or away from the host roots. A newly developed germination stimulant for *S. hermonthica* designated as T-010 was selected as a model stimulant, in principle, owing to its ease of preparation, and evaluated for efficacy in greenhouse and field experiments under artificial *Striga* infestation. Formulated T-010 applied at 0.1, 1 and 10 kg a.i.

ha<sup>-1</sup> to potted soil containing *S. hermonthica* seeds, previously conditioned by judicious irrigation, reduced *Striga* emergence by 94–100%. Results of a field trial showed that formulated T-010, at the same rates as for the pot experiment, delayed and reduced *Striga* emergence by 33% and increased sorghum shoot and head dry weight by 18.7–40.2% and 187–241%, respectively. These findings demonstrated, for the first time, the technical feasibility of suicidal germination for controlling *S. hermonthica*. Optimising structure, formulation, and application protocol of germination stimulants should be the main goals for further improvement of the technology.

**Keywords** Parasitic weeds, *Striga hermonthica*, suicidal germination, strigolactone analogue.