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A Model of the Potential Distribution of *Striga hermonthica* in the African Continent and its Prospection under Climate Change

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Abstract

The genus *Striga* (Orobanchaceae) comprises parasitic weeds recognised as a major problem for crop production in sub-Saharan Africa. *Striga hermonthica* is an obligate parasite of pearl millet, sorghum and other important crops in semi-arid and arid regions of the tropics, producing millions of hectares of yield losses and a great impact on human welfare in the rural areas where it occurs. Under the present situation and the possible scenarios within the framework of climate change *Striga hermonthica*'s current and future distribution needs to be estimated urgently, in order to efficiently target available prevention and management strategies. Using the maximum entropy (Maxent) approach for modelling species' distributions, our research focuses on better describe the present distribution of *Striga hermonthica* and to predict potential future areas where this dangerous parasite could spread in the African continent.

Historical “presence-only” data gathered from museums together with field studies and climatic datasets from the IPCC 4th Assessment Report were used as inputs for our distribution models. Acknowledging the uncertainties of the future, the distribution of *Striga hermonthica* was projected for the year 2020, using the IPCC scenarios and their climatic models. Our intention is to provide managers and decision-makers a useful tool to take preventive and palliative actions against the menage of infestation. This is of great relevance especially for vulnerable areas where the parasite has not yet appeared.

The results of this research, based on the environmental preferences of *Striga hermonthica*, show the existence of two different sub-population in Africa where their current distributions and their different future trends can be identified.

Keywords: Africa, climate change, maxent, potential distribution, Striga