

Predicting impact of climate change on habitat suitability of guava fruit fly, *Bactrocera correcta* (Bezzi) using MaxEnt modeling in India

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ABSTRACT

Maximum entropy (MaxEnt) modeling was used to predict impact of climate change on habitat suitability of guava fruit fly, *Bactrocera correcta* in India. It is a polyphagous pest on a wide variety of fruit crops. Future prediction of potential habitat of *B. correcta* was done for the year 2050 and 2070 with RCP 2.6, RCP 4.5, RCP 6.0 and RCP 8.5 climate scenarios. The model performed better than random with an average test AUC value of 0.75 of 100 replicate tests run. Under the present and future climatic conditions, the model predicted high habitat suitable category for *B. correcta* in the areas of south-western coastal (Kerala, Karnataka, Tamilnadu, Maharashtra and Gujarat) part of India by 2050 and 2070. Presently absolute unsuitable areas of Indian sub-continent are projected to be slightly suitable for *B. correcta* by 2070 due to increase in temperature coupled with decrease in cold stress. The predictive modeling approach presented here provides an outline for future risk of *B. correcta* in India under climate change scenarios, which can be used for its better management strategies.

Keywords : Species distribution modeling; *Bactrocera correcta*; climate change; maximum entropy modeling