

## Resistance to Pod Borer, *Helicoverpa armigera* in *Cajanus scarabaeoides* a Wild Relative of Pigeonpea

Era Vaidya Malhotra<sup>1</sup>, Saurav Tyagi<sup>2</sup>, Ravi Prakash Saini<sup>2</sup>,  
Venkat Raman<sup>2</sup>, Rohini Sreevathsa<sup>2</sup> and Debasis Pattanayak<sup>2</sup>

<sup>1</sup>ICAR – National Bureau of Plant Genetic Resources (NBPGR), New Delhi

<sup>2</sup>ICAR – National Research on Plant Biotechnology (NRCPB), New Delhi

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**Abstract**—Legume pod borer *Helicoverpa armigera* is one of the most devastating pests of cultivated pigeonpea. It is the single largest yield reducing factor causing an estimated yield loss of more than US \$400 million annually. The high dependency on insecticides for the control of this pest has led to the development of insecticide resistance in most of its accessions. Therefore there is an urgent need of using alternative crop protection methods to control its attack. Cultivated pigeonpea varieties display low to moderate levels of resistance to this insect. However, high level of *H. armigera* resistance has been observed in several of the wild relatives of pigeonpea. Feeding behaviour of *H. armigera* larvae on *Cajanus scarabaeoides*, a wild relative of cultivated pigeon pea was studied to unravel the extent of insect resistance and its underlying mechanism in this wild crop relative. Feeding by *H. armigera* larvae was significantly lower on the leaves of *Cajanus scarabaeoides* in comparison to that of leaves of cultivated pigeonpea, *Cajanus cajan*. Larvae fed on *C. scarabaeoides* showed a significant reduction in body weight, length and overall development with every successive larval instar. Larvae fed on *Cajanus scarabaeoides* showed an average decrease of 31.75% in body weight and 34.6% in body length in comparison to *C. cajan* fed larvae. Duration of larval stage was increased by 18 days, as few of the larvae that survived after feeding on *C. scarabaeoides* were able to enter pupal stage after 38 days while *C. cajan* fed larvae completed their larval stage to enter pupal stage within 20 days. The underlying molecular mechanisms of this resistance need to be understood. As the larvae showed growth retardation and higher mortality on feeding on *C. scarabaeoides*, this wild relative can be exploited for developing pod borer resistant crop cultivars.