Oviposition behavior of *Callosobruchus maculatus* (F.) (Coleoptera: Chrysomelidae: Bruchinae) on four varieties of *Lathyrus sativus* L. seeds

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**ABSTRACT:** *Callosobruchus maculatus* (F.) (Coleoptera: Chrysomelidae: Bruchinae) is an important stored grain pest of *Lathyrus sativus* L. (Leguminosae). Olfactometer assay using the surface waxes of the four varieties, Bio L 212 Ratan, Nirmal B-1, WBK-14-7 and WBK-13-1 khesari seeds @ 1, 1, 2 and 2 μg ml⁻¹ showed that the surface waxes of all the varieties attracted *C. maculatus* females and the least attraction was to WBK-13-1. Oviposition by *C. maculatus* was significant on all the varieties with surface waxes in no choice assay. The highest preference was to Bio L 212 Ratan and it was followed by Nirmal B-1, WBK-14-7 and WBK-13-1. The insect did not prefer wax removed seeds for egg laying. The study suggests that WBK-13-1 and WBK-14-7 are the less preferred varieties of *L. sativus* by *C. maculatus* for oviposition, and these varieties might be promoted for cultivation.

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**KEY WORDS:** *Callosobruchus maculatus*, *Lathyrus sativus*, surface waxes, olfactometer assay, ovipositional preference.

**INTRODUCTION**

In recent years, consumption of *Lathyrus sativus* L. (Leguminosae), commonly known as khesari, has been growing worldwide, because it is now perceived as part of a healthy diet. The crop is cultivated in India, Bangladesh, China, Nepal, Pakistan and Ethiopia (Gaur and Maloo, 2011; Girma and Korbu, 2012). Farmers grow this pulse crop due to low-cost cultivation, and resistance to drought, salinity and stress (Gaur and Maloo, 2011). Earlier khesari seeds are considered as a staple food because of neurotoxin (β-ODAP) which is making a comeback because of new plant varieties (Rao, 2011; Singh and Rao, 2013). Further, the seeds contain both homoarginine and β-ODAP, which are important to human health, in areas of cardiovascular physiology, hypoxia and nutrition (Singh and Rao, 2013).

*Callosobruchus maculatus* (F.) (Coleoptera: Chrysomelidae: Bruchinae) is a polyphagous pest of stored legumes in tropics and subtropics (Utida, 1972; Fox *et al.*, 2010). A cursory review of literature indicate the existence of the ‘active’ and ‘normal’ morphs of *C. maculatus* on different stored legumes, the two forms that are thought to represent adaptations to the two very different environments of field and seed store, respectively (Utida, 1972; Hugninand *et al.*, 1985; Messina and Renwick, 1985; Thanthianga and Mitchell, 1990; Fox, 1993; Appleby and Credland, 2001; Zannou *et al.*, 2003; Fox *et al.*, 2010; Arnold *et al.*, 2012; Adhikary *et al.*, 2015; 2016). The active form of...