Isolates of *Beauveria bassiana* were obtained from *Coccinella septempunctata* overwintering in semi-field arenas at the Genetics Research Center in Cambridge, UK. *Beauveria bassiana* was also isolated from the semi-field arena soil by *Galleria melonella* baiting and serial dilution plating on selective media. DNA was extracted from these isolates using ISSR-PCR, and four ISSR primers were used to characterise and to investigate genetic diversity of the isolates at the molecular level. The ISSR-PCR detected a high level of genetic variation among the isolates. Analyses of this data gave indications of intra-specific groupings correlated with source of origin. The grouping of isolates by source of origin, perhaps suggests the overwintering *Coccinella septempunctata* populations were infected by a sub-section of the native population with superior entomopathogenic abilities.