

Can studies of Kashmir bee virus and *Varroa destructor* aid our understanding of “Colony Collapse Disorder”?

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Kashmir bee virus (KBV) was originally discovered in honey bees in various parts of Asia, but is now known to be present in the USA and various parts of Europe, including the UK. Although demonstrated to be very rapidly fatal when injected into bees in the laboratory, it was not hitherto considered to be a serious problem in nature. The similarity of KBV to acute bee paralysis virus (ABPV), which had caused widespread losses of colonies infested with *Varroa destructor* in Europe, suggested, however, that it could be very harmful in association with the mite. Studies carried out in an indoor bee flight room demonstrated that *V. destructor* was capable of transmitting KBV. Interestingly, once established, virus infection remained in the adult bee population after mites had been removed from the colony, suggesting bee to bee transmission. Coincidentally, *V. destructor* was discovered in New Zealand, where KBV was long known to occur, and some subsequent colony losses were associated with KBV and the mite. The discovery in the USA in 2007 that the pathogen most commonly associated with colonies suffering from “Colony Collapse Disorder” (CCD) was the closely related Israeli acute paralysis virus (IAPV), raises intriguing questions. The possible role of IAPV in CCD will be discussed in the light of what is known about the epidemiology and natural history of KBV.