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Scientific note

A scientific note on the detection of American strains of acute paralysis virus and Kashmir bee virus in dead bees in one US honey bee (*Apis mellifera* L) colony

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Acute paralysis virus (APV) of honey bees was originally discovered as a laboratory phenomenon during work on chronic paralysis virus. It occurs commonly as an inapparent infection of bees in Britain, but has never there been associated with disease or mortality in nature. By contrast, APV has been found as a cause of both adult bee and brood mortality in colonies in mainland Europe infested with the parasitic mite *Varroa jacobsoni*; APV was also found in the mite itself. Large amounts of APV have also been detected in dead adult bees from colonies infested with *V. jacobsoni* in Florida.

Kashmir bee virus (KBV) was first isolated from diseased adults of *Apis cerana*. Strains of KBV have been found in *Apis mellifera* in Australia and New Zealand, Fiji, Canada and Spain. Three strains of KBV

were also found in adult bees collected in the US, but the virus was present only as an inapparent infection and was not reported to cause mortality.

In October 1994 we found one honey bee colony in Maryland (BRL-9), infested with *V. jacobsoni*, which had many bees crawling at the hive entrance, unable to fly. These crawling bees eventually died within 3 m of the hive. An antiserum with reciprocal titers of 128 against the British APV isolate and 32 against a Canadian strain of KBV was used to test for virus in these dead bees. Double immunodiffusion tests of individual bees showed spur formation of precipitin lines between samples, indicating two serologically distinguishable viruses in the bees. In immunodiffusion tests five individual bees gave strong positive reactions to

the APV-(British)-type strain antiserum, sixteen individuals gave strong positive reactions to an antiserum to the Canadian strain of KBV, and nine individuals did not react to either antiserum. The individual bees that reacted with the antiserum to the Canadian KBV did not react with the APV antiserum

and vice versa. There was therefore no detectable mixed infection of these two viruses in a single bee. This is the first time that a strain of KBV has been found in dead honey bees in the US and the first report of both APV and KBV occurring in the same honey bee colony.

***Apis mellifera* / acute paralysis virus / Kashmir bee virus / American strain**

Note scientifique sur la détection de souches américaines du virus de la paralysie aiguë et du virus Cachemire de l'abeille chez des abeilles mortes dans une colonie d'abeilles (*Apis mellifera* L) aux États-Unis

Eine wissenschaftliche Notiz zur Entdeckung amerikanischer Linien des Akuten-Bienen-Paralyse-Virus und des Kashmir-Bienen-Virus in toten Bienen in einem Bienenvolk in den USA