



Digital supplementary material to

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The content of this digital supplementary material was subject to the same scientific editorial processing as the article it accompanies. However, the authors are responsible for copyediting and layout.

1 **Table S1.** Honey bee pathogens infection and prevalence reported in ant hosts, of which are reported condition, stage, study area, year and methods.

Species	Condition	Stage	Study area	Year	Pathogen	Detection	Prevalence (%)	Methods	Reference	
<i>Anoplolepis gracilipes</i>	Wild	Queens	Australia	2013	BQCV	Yes	na	Metatranscriptomic	(COOLING & al. 2017)	
					DWV	No	-			
					ABPV	No	-			
					IAPV	No	-			
					KBV	No	-			
		Queens	U.S.A.	2015-2016	DWV	Yes	na	Sequencing	(BRETTELL & al. 2020)	
					Workers	DWV	Yes			na
		Workers	Japan	2012-2019	DWV	Yes	15.4%	qPCR	(LIN & al. 2020)	
						Taiwan	Yes			4.60%
						Malaysia	Yes			13.6%
China	Yes					26.7%				
Fiji	Yes					33.3%				
<i>Aphaenogaster texana</i>	Wild	Workers	U.S.A.	2012-2019	DWV	Yes	100%	RT-PCR	(PAYNE & al. 2020)	
<i>Brachymyrmex spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	100%	RT-PCR	(PAYNE & al. 2020)	
					BQCV	Yes	50.0%			
					SBV	Yes	50/%			
<i>Camponotus spp.</i>	Wild	Workers	U.S.A.	2006-2011	BQCV	Yes	24.0%	RT-PCR	(LEVITT & al. 2013)	
					DWV	Yes	58.0%			
					IAPV	Yes*	6.00%			
					SBV	Yes	24.0%			
				2017-2018	DWV	Yes	75.0%	RT-PCR	(PAYNE & al. 2020)	
					BQCV	Yes	25.0%			
					IAPV	Yes	25.0%			
					ABPV	Yes	25.0%			
<i>Camponotus vagus</i>	Wild	Workers	France	2007	CBPV	Yes*	100%	qPCR	(CELLE & al. 2008)	
		Pupae				Yes*	10.0%			

<i>Camponotus variegatus</i>	Wild	Workers	U.S.A.	2015-2016	DWV	Yes	na	Sequencing	(BRETTELL & al. 2020)
<i>Crematogaster spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	64.7%	RT-PCR	(PAYNE & al. 2020)
					BQCV	Yes	52.2%		
					IAPV	Yes	23.5%		
					ABPV	Yes	64.7%		
					KBV	Yes	5.90%		
					SBV	Yes	17.6%		
<i>Forelius spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	100%		
<i>Forelius mccooki</i>	Wild	Workers	U.S.A.	2020	<i>Crithidia</i> spp.	Yes	100%	RT-PCR	(ALLEN & RANKIN 2022)
					<i>Nosema</i> spp.	Yes	50.0%		
<i>Formica cinerea</i>	Wild	Workers	New Zealand	2018	KBV	Yes	na	Transcriptomic	(VILJAKAINEN & al. 2018)
<i>Formica exsecta</i>						Yes	na		
<i>Formica fusca</i>						Yes	na		
<i>Formica pressilabris</i>						Yes	na		
<i>Formica rufa</i>	Wild	Workers	France	2007	CBPV	Yes	10.0%	qPCR	(CELLE & al. 2008)
<i>Formica spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	No	-	RT-PCR	(PAYNE & al. 2020)
					BQCV	No	-		
					IAPV	No	-		
					ABPV	No	-		
					KBV	No	-		
					SBV	No	-		
<i>Lasius niger</i>	Artificial infection	Workers	Switzerland	2013-2014	DWV-B	Yes	33.3%	qPCR	(SCHLÄPPI & al. 2020)
		Gynes			DWV-B	Yes	18.7%		
		Workers			ABPV	Yes*	94.4%		
		Gynes			ABPV	Yes*	87.5%		
		Workers		2016-2017	ABPV	Yes	100%		
		Gynes				Yes	100%		
									(SCHLÄPPI & al. 2021)

<i>Lasius neglectus</i>	Wild	Workers	Spain & Italy	2014	DWV	No	-	Sequencing	(VILJAKAINEN & al. 2023)	
					KBV	No	-			
<i>Lasius platythorax</i>	Artificial infection	Larvae	Switzerland	2016	DWV-A	Yes	100%	qPCR	(SCHLÄPPI & al. 2020)	
		Workers			DWV-A	Yes	100%			
		Larvae			DWV-B	Yes	100%			
		Workers			DWV-B	Yes	100%			
		Larvae			ABPV	Yes*	100%			
		Workers			ABPV	Yes*	100%			
<i>Linepithema humile</i>	Wild	Workers	New Zealand	2013	DWV	Yes*	81.0%	Metagenomic and qPCR	(SÉBASTIEN & al. 2015)	
					IAPV	No	-			
					KBV	No	-			
					ABPV	No	-			
				2014-2015	DWV	Yes*	na	Metatranscriptomic and qPCR	(GRUBER & al. 2017)	
					IAPV	Yes	na			
					KBV	Yes*	na			
					ABPV	No	-			
		CBPV	No		-					
		BQCV	Yes		na					
		VDV-1	No	-						
		Queens	Spain	2011	KBV	Yes	100%	Transcriptomic	(VILJAKAINEN & al. 2018)	
		Workers				Yes	100%			
		Workers	New Zealand	2018	KBV	DWV	Yes	82.0%	Sequencing and qPCR	(LESTER & al. 2019)
						BQCV	Yes	61.0%		
KBV	Yes					57.0%				
Queens	Spain	2018-2019	KBV	Yes	na	qPCR	(ABRIL & JURVANSUU 2020)			
Workers				Yes	na					
Males				Yes	na					

<i>Linepithema humile</i>	Wild	Workers	New Zealand	2018-2019	DWV	Yes*	41.0%	RT-PCR	(DOBELMANN & al. 2020)
					BQCV	Yes	-		
					KBV	Yes*	56.0%		
					Moku virus	Yes*	34.0%		
	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	50.0%	RT-PCR	(PAYNE & al. 2020)
					ABPV	Yes	50.0%		
					KBV	Yes	50.0%		
	Artificial Infection	Workers	New Zealand	2021	KBV	Yes	na	qPCR	(FELDEN & al. 2022)
	BQCV				Yes	na			
	DWV				Yes	na			
	KBV				Yes	na			
	Wild			2019	DWV	Yes	na	qPCR	(DOBELMANN & al. 2023)
BQCV					Yes	na			
KBV					Yes	na			
Spain & Italy	2014			DWV	No	-	Sequencing	(VILJAKAINEN & al. 2023)	
		KBV	Yes*	Na					
<i>Messor barbarus</i>	Wild	Workers	France	2010	LSV1	Yes	na	Transcriptomic	(BIGOT & al. 2017)
			Spain			Yes	na		
			Marocco			Yes	na		
<i>Messor capitatus</i>	Wild	Workers	France	2014	LSV1	Yes	na		
			Spain			Yes	na		
<i>Messor concolor</i>	Wild	Workers	Greece	2010	LSV1	Yes	na		
					LSV2	Yes	na		
<i>Myrmica rubra</i>	Artificial infection	Workers	Germany	2019	DWV-A	Yes*	98.0%	qPCR	(SCHLÄPPI & al. 2019b)
					DWV-B	Yes*	98.0%		
			Spain & Italy	2014	DWV	Yes	na	Sequencing	(VILJAKAINEN & al. 2023)
KBV	No	-							

<i>Nylanderia spp.</i>	Wild	Workers	U.S.A.	2017-2018	BQCV	Yes	100%	RT-PCR	(PAYNE & al. 2020)
					IAPV	Yes	100%		
					ABPV	Yes	100%		
<i>Paratrechina longicornis</i>	Wild	Workers	Japan	2012-2019	DWV	Yes*	3.40%	qPCR	(LIN & al. 2020)
			Vanuatu			Yes*	50.0%		
			Solomon Island			Yes*	100%		
<i>Pheidole megacephala</i>	Wild	Workers	U.S.A.	2012	DWV	Yes	na	Sequencing	(BRETTELL & al. 2019)
				2015-2016	DWV	Yes	na		(BRETTELL & al. 2020)
<i>Pheidole spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	75.0%	RT-PCR	(PAYNE & al. 2020)
					BQCV	Yes	50.0%		
					IAPV	Yes	25.0%		
<i>Pogonomyrmex californicus</i>	Wild	Workers	New Zealand	2018	KBV	Yes	na	Transcriptomic	(VILJAKAINEN & al. 2018)
<i>Pogonomyrmex spp.</i>	Wild	Workers	U.S.A.	2017-2018	ABPV	Yes	100%	RT-PCR	(PAYNE & al. 2020)
<i>Pseudomyrmex gracilis</i>	Wild	Workers	U.S.A.	2015-2016	DWV	Yes	na	Sequencing	(BRETTELL & al. 2020)
				2017-2018		Yes	75.0%		
<i>Solenopsis spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	Yes	77.8%	RT-PCR	(PAYNE & al. 2020)
					BQCV	Yes	44.0%		
					IAPV	Yes	27.8%		
					ABPV	Yes	38.9%		
					KBV	Yes	22.2%		
					SBV	Yes	44.0%		
<i>Solenopsis invicta</i>	Wild	Alates	U.S.A.	2021-2023	DWV	Yes*	64.0%	RT-PCR	(MILES & al. 2023)
	Artificial infection					Yes*	74.0%		
<i>Solenopsis xyloni</i>	Wild	Workers	U.S.A.	2020	<i>Crithidia</i> spp.	Yes	11.1%	RT-PCR	(ALLEN & RANKIN 2022)
					<i>Nosema</i> spp.	Yes	22.2%		
<i>Tapinoma melanocephalum</i>	Wild	Workers	U.S.A.	2012	DWV	Yes	na	Sequencing	(BRETTELL & al. 2019)
				2015-2016	DWV	Yes	na		(BRETTELL & al. 2020)

<i>Tapinoma spp.</i>	Wild	Workers	U.S.A.	2017-2018	DWV	No	-	RT-PCR	(PAYNE & al. 2020)
					BQCV	No	-		
					IAPV	No	-		
					ABPV	No	-		
					KBV	No	-		
					SBV	No	-		
<i>Technomyrmex albipennis</i>	Wild	Workers	U.S.A.	2015-2016	DWV	Yes	na	Sequencing	(BRETTELL & al. 2020)
<i>Tetramorium caespitum</i>	Wild	Workers	U.S.A.	2006-2011	DWV	No	-	RT-PCR	(LEVITT & al. 2013)
					BQCV	No	-		
					IAPV	No	RT-PCR		
					SBV	No	-		
					KBV	No	-		

- 2 Legend.-: not detected; na: not applicable; *: replicative virus; ABPV: acute bee paralysis virus; IAPV: Israeli acute paralysis virus; BQCV: black queen
3 cell virus; SBV: sacbrood virus; DWV: deformed wing virus; DWV-A: deformed wing virus type A; DWV-B: deformed wing virus type B; LSV1; Lake Sinai
4 virus type 1; LSV2; Lake Sinai virus type 2; KBV: Kashmir bee virus; CBPV: chronic bee paralysis virus; VDV-1: Varroa destructor virus 1.