

Letter to Editor

Using only proteomics, Bromenshenk et al (PLoS One, 2011, 5(10):e13181) have claimed to have found peptides from an invertebrate iridovirus in bees displaying symptoms of Colony Collapse Disorder. These findings have not been reproduced by anyone else and raised several questions when they were first published due to the database apparently used to identify proteins from MS/MS data. I had originally published a letter (Foster, 2011, 10(3):M110.006387) claiming that most if not all of their results could be explained by them not having considered honey bee protein sequences in their database search. The major caveat to my original note was that I did not have access to their original data at the time and so had to base my analysis on a reasonably similar dataset of my own.

The authors of the original study in question here have now released what appears to be the full set of .raw files upon which their study was based. Following their described search parameters as closely as possible, I reanalyzed their data using Mascot (v2.3) and Proteome Discoverer to search their fragment spectra against the same two libraries described in my original note (Foster,2011,10(3):M110.006387) (bee plus

the authors' pathogen database or the pathogen database alone). In short, there were no confidently assigned peptides from iridovirus proteins when bee proteins were also considered, whereas there were several iridovirus peptides that surpassed the 95% confidence interval calculated by Mascot for such a small database. However, manual inspection of some of these spectra revealed them to be very poor matches (e.g., rarely a consecutive b- or y-ion series seen). In addition, the highest-ranking iridovirus matches seemed to come from spectra that matched much better to bee peptides.

Thus, now that the full dataset is available, it is clear that my own findings and those of Chalkley and Knudsen (PLoS One, 2011, 6(6):e20873) were on the mark. There is as yet no evidence that iridoviruses are in anyway responsible for the recent massive losses of honey bee colonies.

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