Biological Fight between Cordyceps militaris and the Asiatic Wasp Vespa velutina

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The Asiatic hornet Vespa velutina (from now on V.v) has become a big plague in Europe achieving an annual expansion radius of 50-100 km, growing exponentially and it is already present in more than 8 countries. V.v has vast consequences over human safety as well as nature. It has no direct predator that controls the species and feeds on all kinds of small animals putting many native species at risk; showing a preference for honeybees apiaries (Apis mellifera, A.m), feeding on 25 to 50 individuals a day. Current combat methods have not yet been effective. Cordyceps militaris (C.m) is an endoparasite ascomycete fungus. These fungi feed on chitin that V.v contains in their exoskeleton, on which they will feed during the development phases (metamorphosis) of the insect in the winter. We aim to introduce the fungus into a nest of the V.v, it will feed on the chitin of its larvae and will reach the nucleus of the nest where it will infect the Queen. Our results showed that C.m is the most appropriate for combating the wasp expansion since we have proven through laboratory experiments that they are not only capable of growing and surviving on the wasp, but that it is also able to convert the nest in a suitable place for its reproduction. These findings will contribute to control Vespa velutina´s world wide growth.

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