Review of: "Chemically modified dsRNA induces RNAi effects in insects in vitro and in vivo: A potential new tool for improving RNA-based plant protection"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

Insecticidal RNAi is considered a viable pest control option that can potentially avoid the hugely damaging collateral impacts of conventional insecticides. A primary concern, however, is delivery to the target insect. In planta synthesis of dsRNA is one option for certain pest species. However, depending on the target insect, instability of ingested dsRNA due to nucleases can affect the outcome/efficacy.

To avoid use of GM crops, spraying ‘naked’ dsRNA preparations may be an option, again depending on the nature of the target pest and the activity of its salivary/gut nucleases. This paper provides data on the improved stability of chemically modified dsRNA to nuclease attack and demonstrates that such modified dsRNAs can induce RNAi in two insect species. This is encouraging, although there are limitations to the concept. The modified dsRNAs are shown to be just as unstable as non-modified dsRNA when subjected to UV exposure, which is obviously of concern in terms of applications. In addition, for one of the insect species trialled, the stink bug, the modified dsRNA was delivered by injection, not by ingestion. However, the study does open the possibility of combining RNA modification chemistry with other formulation technologies to generate a sprayable RNAi-based insecticide.