Chemical ecology at work: plant defense alkaloids as source of inspiration for crop protection

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[1]Syngenta Crop Protection AG

Plants produce alkaloids as defence against insects, a result of a dynamic and complex co-evolution over millions of years. These bioactive natural products may repel or intoxicate insects and as such constitute a source of inspiration for the design of synthetic active ingredients in insect control.

Herein, we present the discovery of pyridinylcyanotropanes,[1] inspired by the plant defence alkaloid Stemofoline. Furthermore, we describe how the physical chemical properties of pyridinylcyanotropanes and structurally-related analogues dictate their localization in plant tissue and ultimately their performance in crop protection.[2]

[1] R. J. Lind, D. T. Greenhow, J. Blythe, J. Goodchild, E. Hirst, S. J. Dunbar, F. G. P. Earley, *Proc. Brighton Crop Protection Conf: Pest and Diseases* **2002**, *1*, 145 – 152.
[2] A. Buchholz, A. C. O'Sullivan, S. Trapp, In ACS Symposium Series: Discovery and Synthesis of Crop Protection Products; ***2015**, 1204*, 93–161