SOCIÉTÉ CHIMIQUE DE GENÈVE

Current trends and challenges in the discovery of agrochemicals

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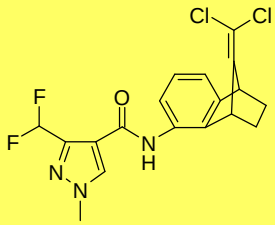
After a short introduction on the question why the search for new solutions against weeds, fungi and insects is still very important, some general trends and techniques of crop protection chemistry will be explained, such as the significance of halogen atoms and heterocyclic rings; the role of natural products as leads for agrochemical research; the use of isosteric relationships, pharmacophore inversion, carbonyl transposition and scaffold hopping in lead optimization; the importance of certain functional groups for procidal action, fine-tuning of physico-chemical properties and patent-breaking.

Case studies from three different mode of action classes will give proof, how state-of-the-art organic chemistry enables the synthesis of fungicidally active compounds, such as the *Succinate dehydrogenase* inhibitor benzovindiflupyr (**1**),[2] the tubulin polymerization promoter **2**[3] and the *Cellulose synthase* inhibitor mandipropamid (**3**).[4] Design aspects, synthesis and structure-activity relationship data of these novel fungicide classes will be presented.



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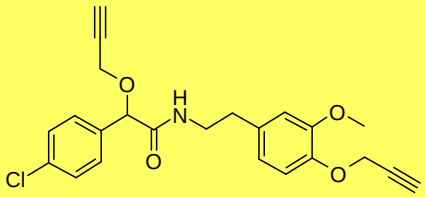

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2. H. Walter in “Bioactive Heterocyclic Compound Classes - Agrochemicals”, C. Lamberth, J. Dinges (Eds.), Wiley-VCH, Weinheim **2012**, p. 175-193.
3. C. Lamberth, S. Trah, S. Wendeborn, R. Dumeunier, M. Courbot, J. Godwin, P. Schneiter, *Bioorg. Med. Chem.* **2012**, *20*, 2803-2810.
4. C. Lamberth, A. Jeanguenat, F. Cederbaum, A. De Mesmaeker, M. Zeller, H.-J. Kempf, R. Zeun, *Bioorg. Med. Chem.* **2008**, *16*, 1531-1545.

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