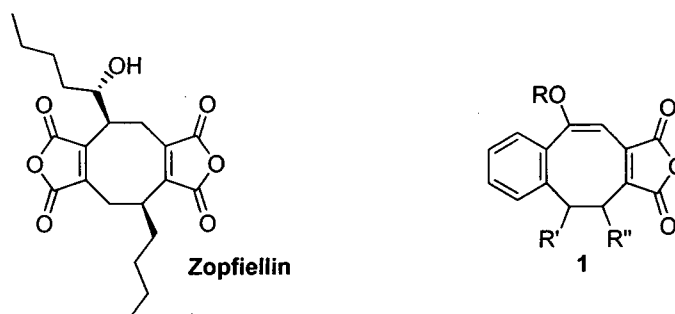


Cyclooctadiene Anhydride Analogues of the Natural Product Zopfiellin as Sources of New Fungicides

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Fungicide treatments remain essential to maintain healthy crops and reliable, high-quality yields. However, despite the availability of effective fungicides, new antifungal chemicals are still needed to improve yields and to combat pathogens showing resistance or reduced sensitivity to existing products. Therefore, to develop new generations of antifungal agents, it is crucial to find antifungal compounds with novel chemical scaffolds and new mode of action. For this purpose, Nature has been a very fruitful source of new substances and natural products still exert a strong influence on modern crop protection development, by serving as lead structures for the discovery of active substances, often featuring novel and unique modes of action.



Zopfiellin is a secondary metabolite isolated in 1994 from the ascomycete *Zopfiella curvata* (Fuckel) Winter. This compound contains a disubstituted cyclooctadiene ring fused with two maleic anhydride moieties and it is endowed with interesting antifungal activity. The mode of action of zopfiellin is still unknown and currently the only method to obtain this compound is the isolation from a fermentation broth of a suitable fungal strain. In this poster we report the preparation of structurally and synthetically simplified zopfiellin analogues containing a cyclooctadiene anhydride nucleus (**1**), and the evaluation of their *in vitro* and *in vivo* antifungal activity. The growth inhibition data on a set of phytopathogen fungi showed that most of the synthesised compounds possessed a broad spectrum of activity. In particular they resulted very effective against the oomycetes *Phytophthora infestans* and *Pythium ultimum*, reaching a level of activity well comparable with that of commercial fungicides in use.