

# ~~Ph~~Pharmaceutical Ventures with Garlic Polysulfides

**Chris Hamilton**  
School of Pharmacy  
University of East Anglia





## Broad spectrum pesticides

Insecticidal  
Nematicidal  
Bactericidal  
Fungicidal

Food-based so zero residue limits

## Multiple modes of action

*General oxidative stress triggered by thiol cofactors and protein thiols*

**Resistance unlikely**

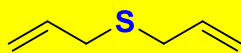
## Regulatory approval (UK/EU, Kenya, Australia)

Root knot nematodes (*Carrot, potato, sports turf*)

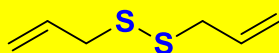
Insects (*carrot/cabbage root fly*)

Fungal pathogens (*e.g. fusarium now emerging*)

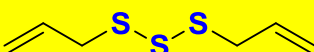
DAS1



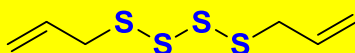
DAS2



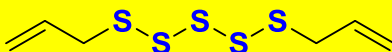
DAS3



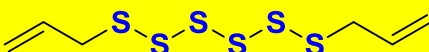
DAS4



DAS5



DAS6



## DIALLYLPOLYSULFIDES

Bioactive components of  
distilled garlic oils

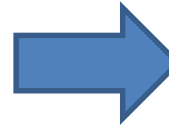


[www.ecospray.com](http://www.ecospray.com)

## Interests/activities

### Determine organism-specific modes of action

Knowledge-driven applications against specific pests



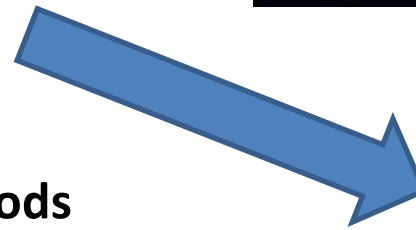
### Chemical sensors/indicators

To detect in vivo



### New formulations/approaches to control...

Volatility, Stability, Placement, Release



### Optimising polysulfide production methods

- (1) From garlic
- (2) Synthetic garlic oils



## Priority Areas

Novel Agents for pathogen/insect control

Underpinning Mechanisms

**1. Expertise in**

- (i) Garlic polysulfide chemistry/biochemistry (Science and Applications)**
- (ii) Insect Biology**

**2. Connectivity with relevant industrial partners with expertise in agronomy, field trials, farm machine engineering**



**Norwich Medical School: Prof David Livermore**

*Lead for antibiotic resistance at.....*



Public Health  
England



**John Innes Centre**

*Unlocking Nature's Diversity*

Improving crop yields and adaptability within  
diverse and sustainable environments

[www.jic.ac.uk](http://www.jic.ac.uk)

# Challenges

Finding solutions which are:-

**1. Relevant to Brazilian agricultural needs**

compared to Europe...

Different climate(s)

Different crops

Different pests

**2. Practical/feasible**

Approval and uptake by Regulators,  
Farmers, Retailers and Consumers

**3. Timely**



[www.targetset.co.uk](http://www.targetset.co.uk)

