

## In-vitro tests on the inhibitory effects of Bio-Film's Rhizomax™ with Bicarbonate against *Sclerotinia* species isolated from Bundaberg chillies.

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By Jamie Zapp (MSc, Plant path), Ryan Lester

### Summary

Applications of Bio-Film's Rhizomax™ at concentrations of 2% and 5%, were shown to be highly effective in suppressing the growth of *Sclerotinia* sp. The addition of 2% w/v sodium bicarbonate marginally decreased the efficacy of the Rhizomax™. The *Sclerotinia* was isolated from chilli plants grown in the Bundaberg area of Queensland.

*Sclerotinia* is a widespread pathogenic fungus which presents as a white mould and may form black resting structures called Sclerotia. Hosts of *Sclerotinia* sp. include herbaceous plants, especially flowers and vegetables.

### Aims

To determine if Rhizomax™ with or without bicarbonate can suppress *in vitro* mycelial growth of the *Sclerotinia* sp. isolated from chillies in Bundaberg.

### Materials & Methods

Inhibition of the pathogen *Sclerotinia* sp. by Rhizomax™ was determined by comparing the radial growth of the fungal pathogen on potato dextrose agar (PDA) in the presence of varying concentrations of Rhizomax™ with/ without 2% w/v bicarbonate.

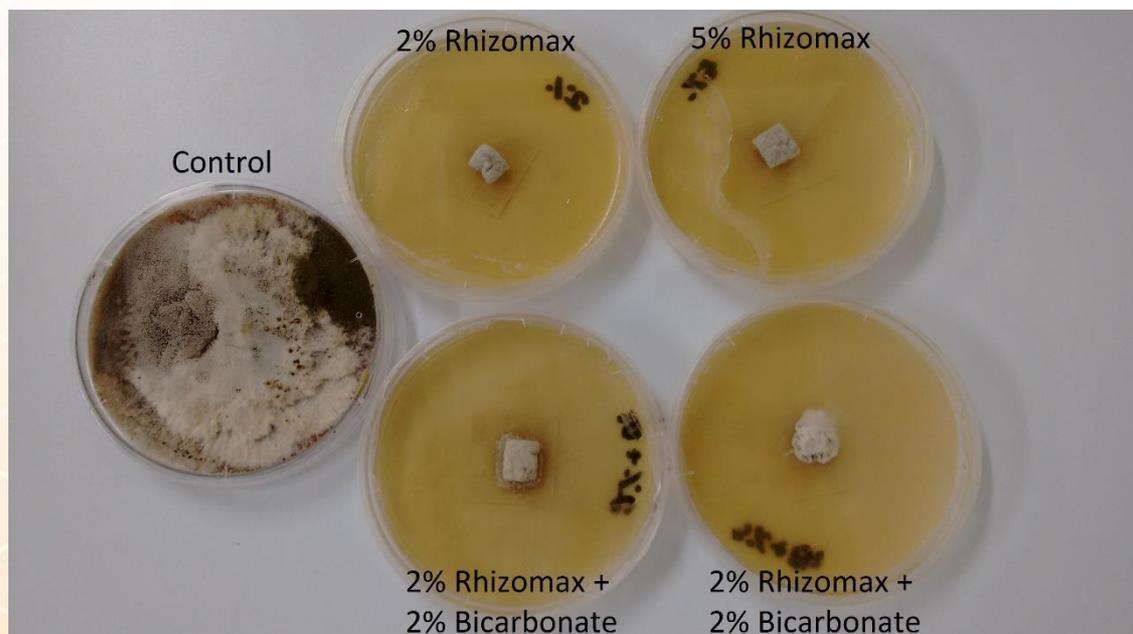
Rhizomax™ solutions (100ml of each) with concentrations of 2% and 5% were prepared with sterile deionised water. Sodium bicarbonate was added to each solution to achieve 2% w/v. Then 0.1 ml of each Rhizomax™ with bicarbonate solution was pipetted onto cooled PDA plates and then spread evenly onto the entire agar surface aseptically. A 9 mm diameter disc containing mycelium of the pathogen was then taken from a known culture grown on PDA. This was then placed upside down in the middle of the agar plate containing the Rhizomax™. After several days the growth of the pathogen was assessed by measuring the radial growth out from the fungal disc. The growth of the pathogen in the presence of the varying Rhizomax™ concentrations was compared and the levels of fungal suppression on the plates calculated. 4 Plates were tested at each concentration of Rhizomax™. The percentage inhibition compared to the water only control was tabulated from the mean values.

### Results & Discussion

All concentrations of Rhizomax™ were shown to be highly effective at suppressing the mycelial growth of *Sclerotinia* species. The addition of bicarbonate slightly decreased the inhibition of the pathogen afforded by the Rhizomax™. The best inhibition was achieved by 2% Rhizomax™ without bicarbonate and closely followed by 5% Rhizomax™ without bicarbonate (Table 1).

**Table 1. Suppression of *Sclerotinia species* mycelial growth on agar plates by Rhizomax™ and sodium bicarbonate.**

Treatment	10 days incubation	
	Mean ± Std Dev(mm)	% inhibition
Untreated control	40 ± 0.0	0%
2% Rhizomax™	1 ± 0.3	98%
5% Rhizomax™	1 ± 0.5	97%
2% Rhizomax™ + 2% Bicarb	4 ± 1.5	91%
5% Rhizomax™ + 2% Bicarb	2 ± 1.5	95%



**Figure 1. *Sclerotinia* challenge plate test. The Control is *Sclerotinia* only.**

## Conclusions

**Rhizomax™** was shown to be highly effective at inhibiting the *In Vitro* growth of this *Sclerotinia species*.