In-vitro tests on the inhibitory effects of Bio-Film's Loli-Pepta™ with bicarbonate against suspected *Fusarium species* isolated from Gayndah mandarins.

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Summary

Applications of Bio-Film's Loli-Pepta™ at concentrations of 2% and 5%, were shown to be highly effective in suppressing the growth of *Fusarium sp.* The addition of 2% w/v sodium bicarbonate had slightly decreased the efficacy of the Loli-Pepta™.

Fusarium is a genus of filamentous fungi that are associated with soil borne disease.

Aims

To determine if Loli-Pepta™ with or without bicarbonate can suppress *in vitro* mycelial growth of the suspected *Fusarium sp.* isolated from mandarins sourced from Gayndah, Queensland.

Materials & Methods

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

Loli-Pepta™ 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 Loli-Pepta™ 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 Loli-Pepta™. 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 Loli-Pepta™ concentrations was compared and the levels of fungal suppression on the plates calculated. 4 Plates were tested at each concentration of Loli-Pepta™. The percentage inhibition compared to the water only control was tabulated from the mean values.

Results & Discussion

All concentrations of Loli-Pepta™ were shown to be highly effective at suppressing the mycelial growth of *Fusarium species*. The addition of bicarbonate slightly decreased the inhibition of the pathogen afforded by the Loli-Pepta™. The best inhibition was achieved by 5% Loli-Pepta™ without bicarbonate. (Table 1).

Table 1. Suppression of *Botryosphaeria species* mycelial growth on agar plates by Loli-Pepta™ and sodium bicarbonate.

Treatment	10 days incubation	
	Mean ± Std Dev(mm)	% inhibition
Untreated control	35 ± 2.7	0%
2% Loli-Pepta™	4 ± 0.9	87%
5% Loli-Pepta™	2 ± 0.8	96%
2% Loli-Pepta™ + 2% Bicarb	4 ± 1.7	88%
5% Loli-Pepta ™ + 2% Bicarb	5 ± 3.0	87%

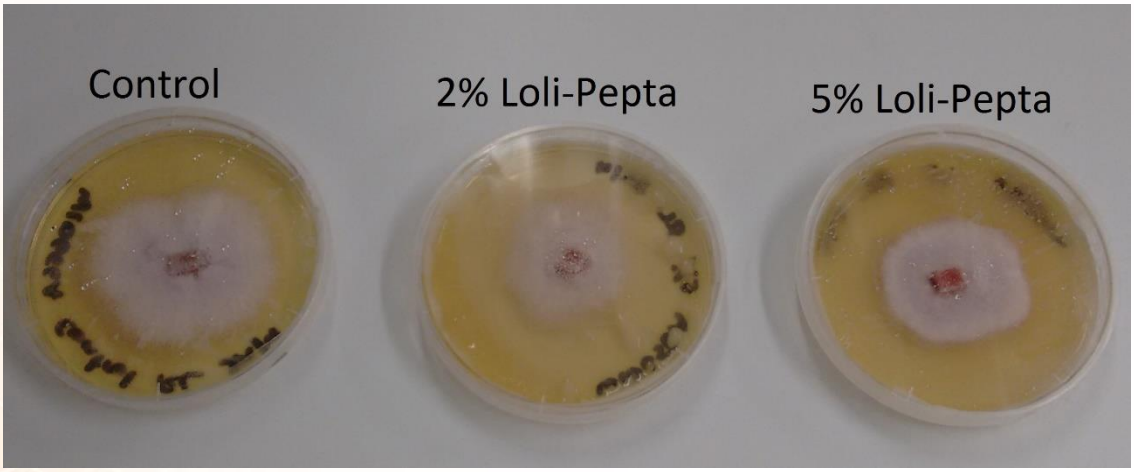

Figure 1. *Fusarium species* challenge plate tests

Conclusions

Loli-Pepta™ was shown to be highly effective at inhibiting the *In Vitro* growth of this *Fusarium species.*

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