POST-HARVEST
YM-FAB
CHEMICALS

Emerging Chemical Technology

DO FOOD PRESERVATIVES AND ADDITIVES HAVE A PLACE IN POST HARVEST TREATMENTS?

WHY FOOD ADDITIVES/PRESERVATIVES?

Post harvest treatments will always have a role in the way fresh fruit , vegetables and other processed produce are packed and stored. It is a well known fact that one pathogen or spore on your crop can quickly damage and destroy a whole cool room of fruit or vegetables.

Consumers are also looking for organic products and or products that have minimal chemical usage.

There is a requirement in the fruit and vegetable industry to develop a disinfectant that has good efficacy on pathogens, little or no risk to environment and acceptable MRL's.

CHEMICAL TECHNOLOGY

Food additives and preservatives have been around for years and are found naturally in some fruit and vegetables. They are used on a daily basis and can be found in many cosmetic and pharmaceutical products as well as food and drinks such as orange juice.

These are actives that we use and consume every day and have done so for over fifty years, in some cases even centuries.

The combination of additives and preservatives can provide unlimited alternatives for applications in the post harvest treatments to meet demands for healthy and safe foods.

The combinations trialed so far have given some exciting results as both curative and preventative on certain pathogens.

THE CHALLENGE
What additives and preservatives do we choose?

What rates do we use?
What happens when actives are combined?
What are the efficacy results?

What we do know is that, one combination of actives we have called WOB PH1 has shown good efficacy in controlling pathogens.

At certain pH levels WOB PH1 appears to reduce the level of contamination of Fungi on pears (Figure 1) and reduce the level of E. coli on pears to zero. Many other bacterial and fungal pathogens can also be effectively reduced with WOB PH1.

As WOB PH1 continues to perform well we have the opportunity to further explore stability of the formulation, residues and ADI's.

RESULTS

Efficacy of WOB PH1 against:-

Erwinia caratovora = Ec challenged at 10^5-10^6/ml
Botrytis cinerea = Bc challenged at 10^7-10^9/ml

Results provided by Agpath Pty Ltd

ACTIVE	PATH	TIME	CURATIVE	PREVENTATIVE
WOB PH1	B.c	24 hrs	No obvious effect.	No obvious effect.
		48 hrs	No growth onto discs. Some sporulation around active discs.	Restricted growth onto and into agar containing active. Some sporulation but restricted around plug.
		7 days	No growth onto discs. Some sporulation around active discs. Hyphae collapsing. Conidiophores collapsing.	Some hyphal growth out from plug. Restricted growth but some sporulation around plug.

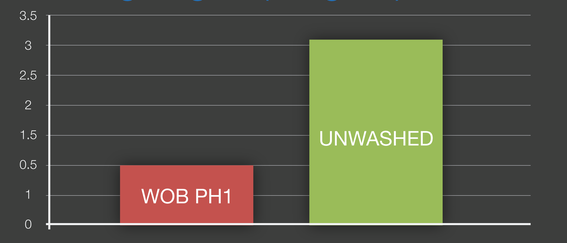

Figure 1. Log 10 of cfu/g + 1 of fungi on pears unwashed and washed with WOB PH1. LSD = 1.166 Graph results taken from Report by Agriculture Victoria Services Pty Ltd.