

5th Lecture, Pathology

Mycotoxin production by postharvest pathogens



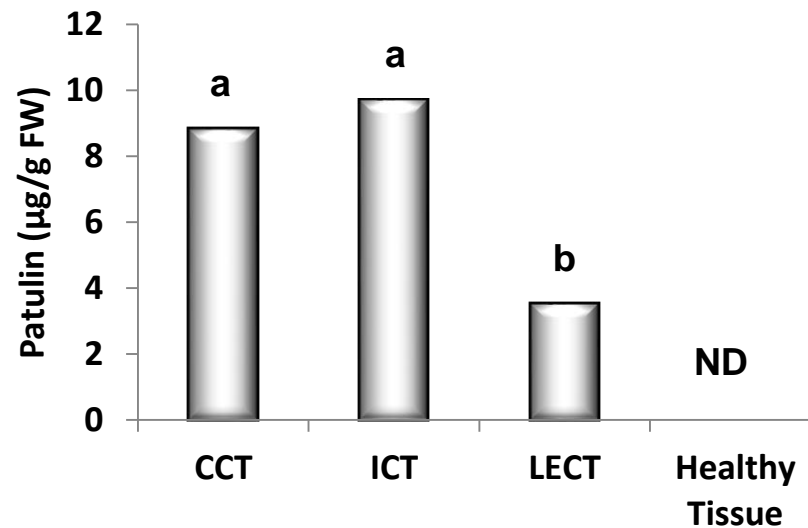
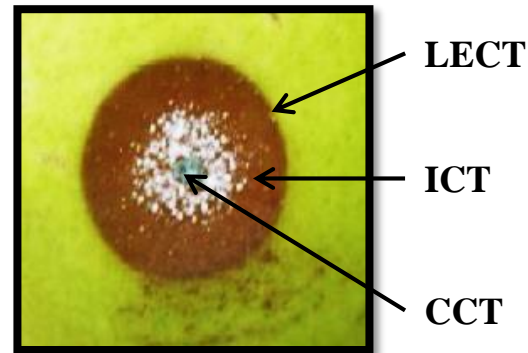
Patulin- *Penicillium*

Ochratoxin- *Aspergillus*

Patulin

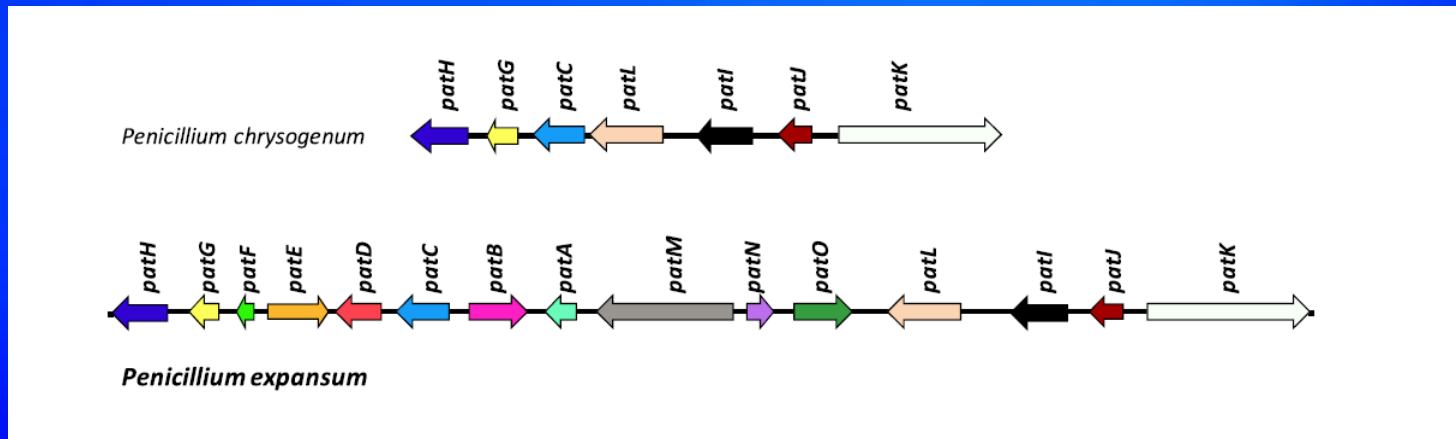
- Patulin is a mycotoxin which is monitored in the food industry due to its toxic effect on humans.
- Several factors are known to affect patulin accumulation in apples: the specific *P. expansum* isolate, the fruit cultivar, fruit pH and the storage conditions.
- Patulin is a polyketide metabolite. Biosynthesis pathway composed of many steps.
- Pathogenicity(??)

GLA, pH and patulin in decayed apple fruit

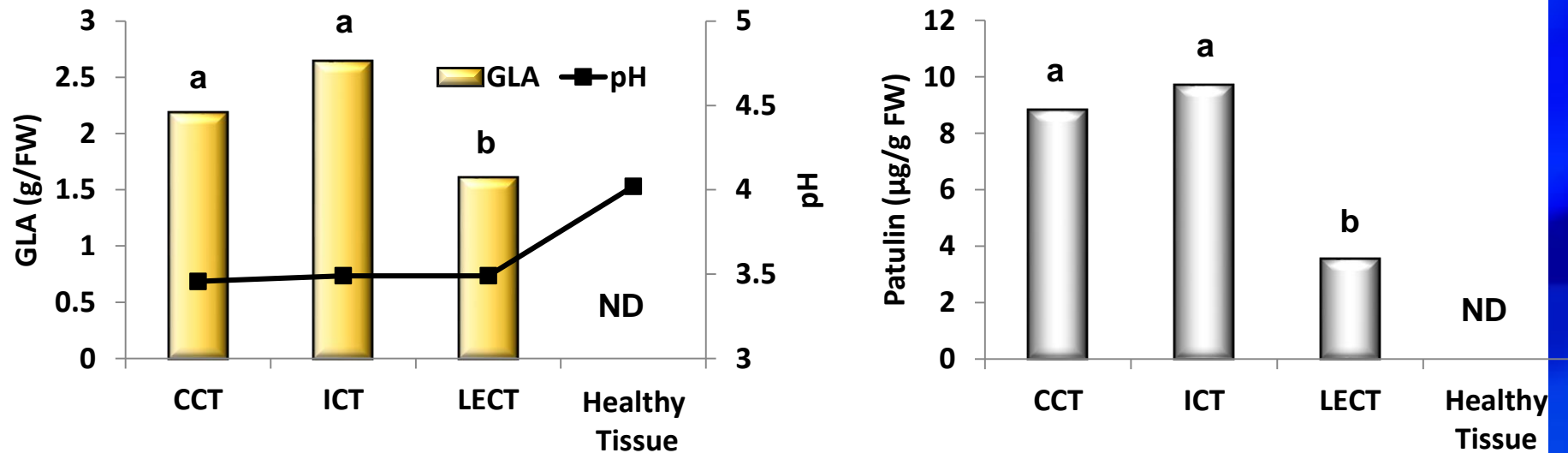
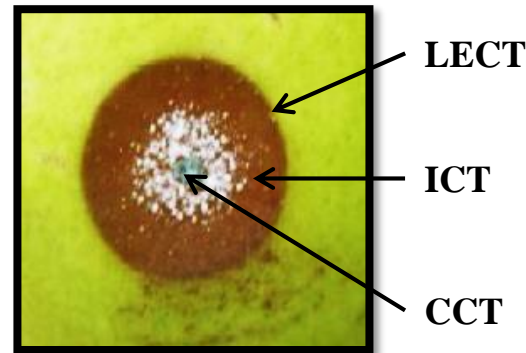




Schematic representation of the patulin gene cluster in *P. expansum* and comparison of gene organization with two other fungal species that contain some genes related to patulin production or the entire patulin cluster.

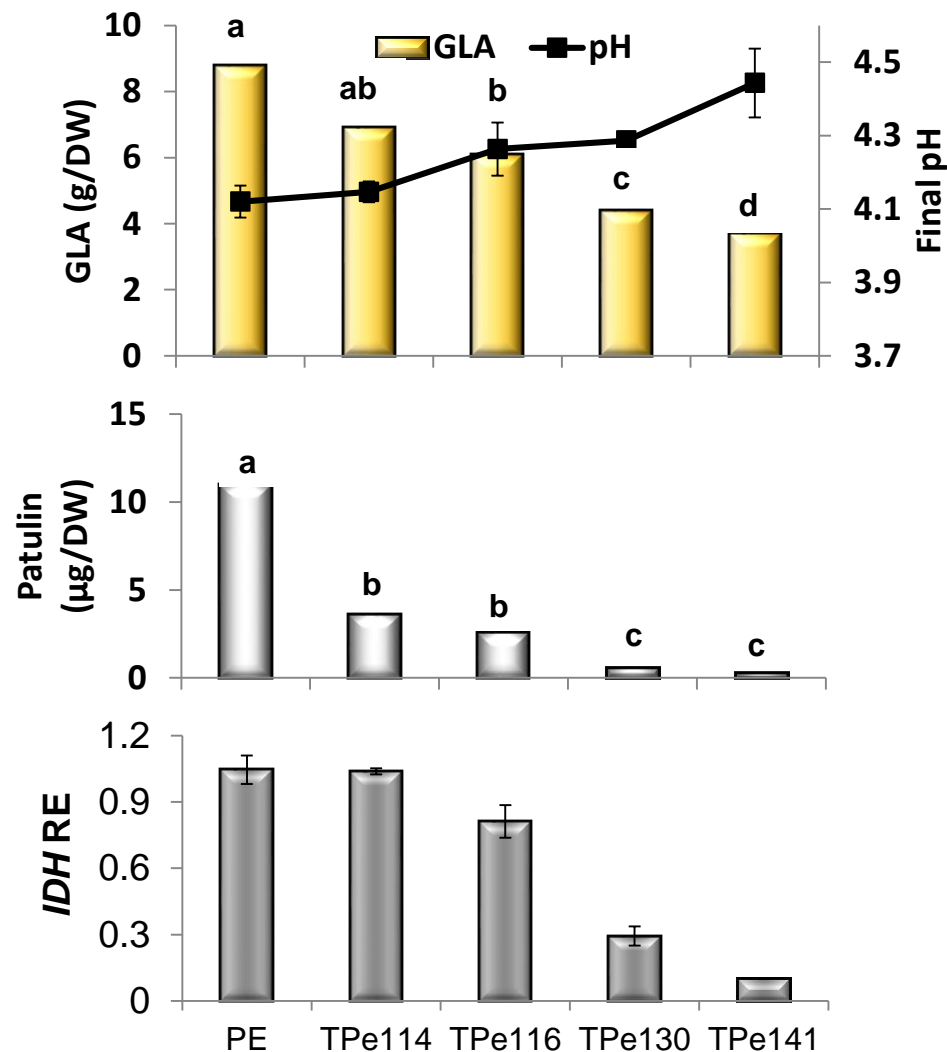


GLA, pH and patulin in decayed apple fruit





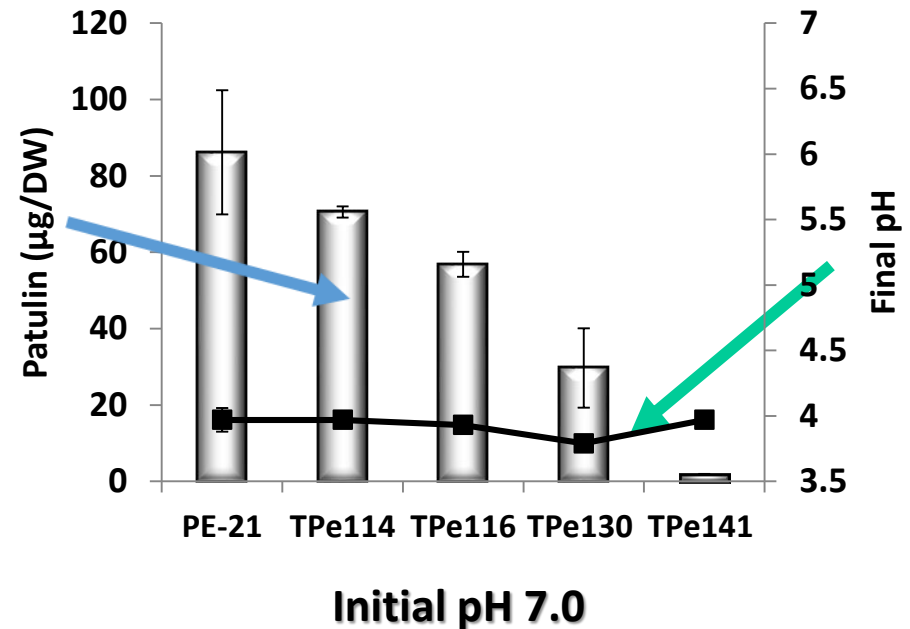
GLA and patulin accumulation and *IDH* expression in *gox2*-RNAi mutants



SM-agar
175mM sucrose initial pH 7

Gluconic acid or pH??

Relationship between initial pH and patulin accumulation



Barad *et al.*, MPMI 2014

- It is not the low pH but the potential for GLA production that determines the accumulation of patulin

Summary

Occurrence of both GLA and patulin in the colonized tissue

Downregulation of *GOX2* significantly decreases GLA and patulin production

It is not the low pH but the potential for GLA production that determines the accumulation of patulin