



# **Castanea and Schinopsis sp. Tannins**

## **Natural extracts for crop protection**

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October 23th 2018



Industrial company

Global leader in Plant extracts, 160 years of experience

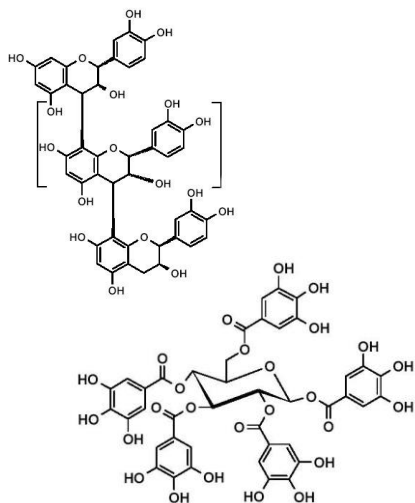
Selecting only natural raw materials,

Developing effective solutions for different uses :

- Leather
  - Animal Nutrition
  - Food, oenology
  - Renewable energy
- and now Agriculture



- Water soluble phenolic polymers synthesised by plants with ability to precipitates alcaloids and proteins...
- Condensate and hydrosoluble Tannins:



## Réactive substances

- Ionic bond
- Hydrogen bond
- coordinate bond
- hydrophobic interactions

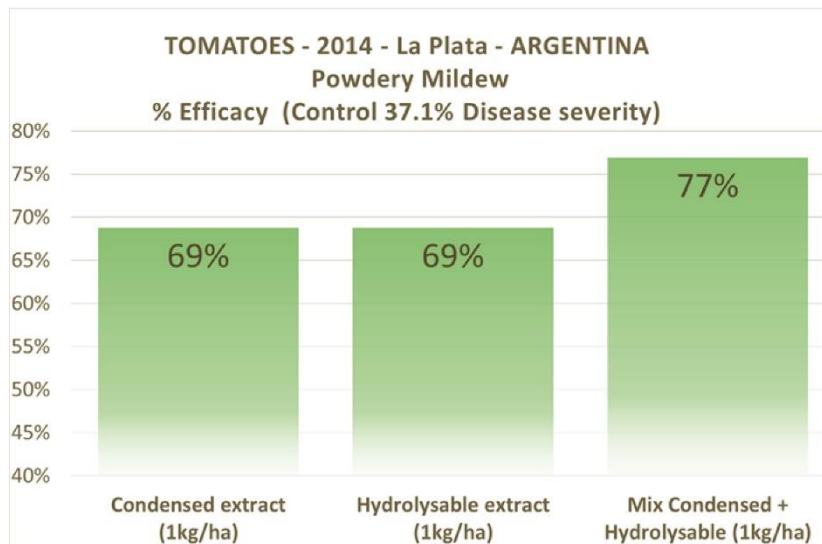
## Key properties

- Antioxidant
- Anti bacterial
- Biodegradability (blocking)
- Interaction with Cations & enzymes to disrupt pathogens activity



## Castanea and Schinopsis Tannins, **blend interest**

### EFFICACY



### FORMULATION IMPROVEMENT



40% SL Castanea sp & Schinopsis sp.  
Tannins (coded IAZ08)

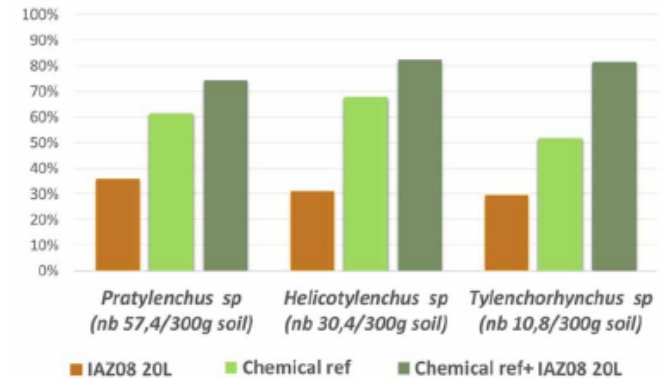


A clear “Cide” efficacy

## Lab Trials

Location of trial: Montpellier (Elisol) – France -2016  
 Situation: Lab trial, Natural Soil infested, clay 14%, loam 23%, sand 63%  
 Target: *Pratylenchus* sp - *Helicotylenchus* sp  
*Tylenchorhynchus* sp  
 Trial design 4 replication conducted in controlled conditions.  
 Application on Humid soil (24,6% humidity, 80% of soil retention capacity).  
 Assessment T+10 days

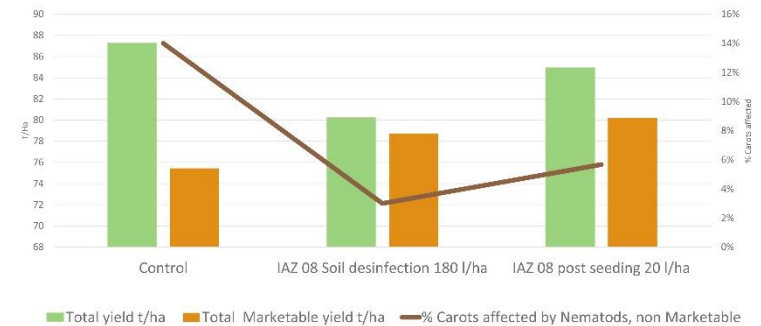
## NEMATODS EFFICACY



## Carots Trials

Location of trial: 69126 BRINDAS – France -2016  
 Trial conducted by SERAIL.  
 Crop: Carots Romance (Nunhems) (Seeding 16/7/16)  
 Target: *Meloidogyne incognita*  
 Trial design 4 replication conducted in field.  
 Application : In soil disinfection (29/6) 17 days before seeding IAZ08 180L/Ha  
 In application 4 days after seeding (20/7) IAZ08 20 L/Ha

## NEMATODS - CAROTS - 2016



A New mode of action for vegetables and field crops.



**A mode of action by disturbing pathogens (cations/enzymes) – contact and preventive**

**More active on soil diseases, in foliar to be consider as a partner**

Potential  
alternative  
/partner

## Rhizoctonia solani on Lettuce

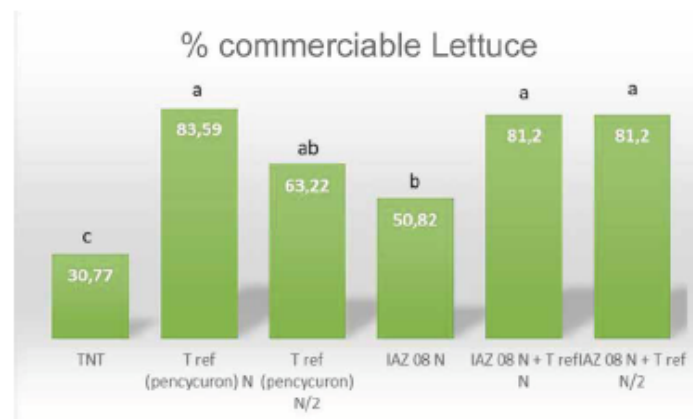
Location of trial: 69 126 Brindas (SERAIL)  
France -2011

Situation: Glass house trial conducted with  
artificial contamination

Target: Rhizoctonia solani on Lettuce

Trial design 4 replication.

Application stage BBCH 16 the 10/08/2011



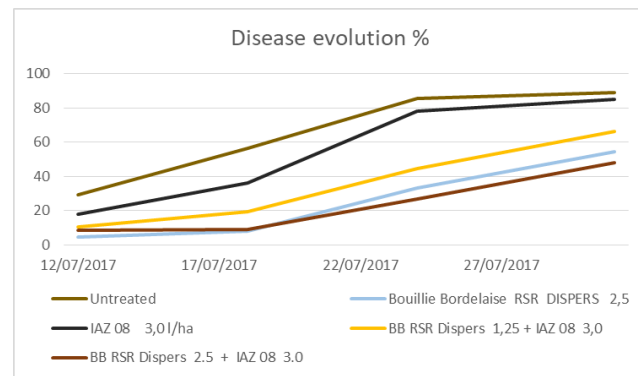
Location of trial: 28360 SOURS – France -2017  
Trial conducted by CENTEXPE.

Crop: Potatoes - Charlotte (Planted 24/04/17)

Target: Phytophthora infestans

Trial design 4 replication conducted in field.

Application : 8 Applications (from 31/05/17 to  
19/07/17)



In program  
ex: +Copper



## Castanea & Shinopsis Tannins are under EU review as Basic Substance through Article 23 - EU 1107/2009 regulation

*EFSA 2018 -EN-1363*

### Nematicide Control

Type of treatment	Pest target	Crops	dosage
Soil Application	Nematods <i>Meloidogyne sp</i>	Tomatoes, Carrots, Lettuces, Potatoes, Beets,...	10-20L/Ha 1-3 applications

### Soil Diseases

Type of treatment	Pest target	Crops	dosage
Soil Application	Rhizoctonia sp.	Raddish, Turnip, Potatoes, Lettuces,...	5-10L/Ha 1-6 applications
Soil Application	Sclerotinia sp..	Eggplant, Potatoes, Lettuces, ...	5-10L/Ha 1-6 applications

### Foliar Diseases

Type of treatment	Pest target	Crops	dosage
Foliar application	Phytophthora sp, Altenaria sp.	Tomatoes, Potatoes...	3-10L/Ha 1-6 applications
Foliar application	Pseudomonas sp.	Tomatoes,...	3-10L/Ha 1-6 applications
Foliar application	Podospaera xanthii	Curcubits,...	3-10L/Ha 1-6 applications
Foliar application	Xanthomonas campestris	Stone fruits, Nuts trees	3-10L/Ha 1-6 applications
Foliar application	Elicitor	Cereals	1-3L/Ha 1-3 applications

Areas of development,

Interaction with plants,

- Stimulation of Natural Defence
- Nutrition N, P...

Biocontrol, programs, synergies, antagonisms...