

## TESTS CONDUCTED WITH HUWA-SAN TR-50 TO ELIMINATE DISEASES IN MUSHROOM

### 1.- PURPOSE OF THE TEST

The reason for the conducted test is to verify the full or partial elimination of the derived diseases in the production of mushroom (**Agaricus Bisporus**), and Portobello (**Agaricus brunnescens**) in the installations of COPECHAMP S.L., located in Camino de Santa Cruz, 8, Villanueva de la Jara (Cuenca), always assisted and authorised by the production manager Alejandro Escobar and with permission to be published, in different concentrations of Huwa-San TR-50, depending on the production stage as:

- **Disinfection of empty facilities**
- **Disinfection of the cover peat and pre-fructification**
- **Disinfection in fructification and harvest**

Hereafter we will describe the conducted procedure.

### 2.- LIST OF DISEASES TO BE TREATED

***Dactylium dendroides*** (cobweb)

***Verticillium malthousei*** (dry mole)

***Mycogone pernicioso*** (humid mole]

***Pseudomonas toolasi*** (bacterial stain)

### 3.- DISINFECTION IN EMPTY INSTALLATIONS

#### **First stage.**

We have disinfected the EMPTY FACILITIES (once cleaned with water, removing dirt and rests from the previous harvest), with a dosage of 2% active stabilized Hydrogen Peroxide (**4 liters of HUWA-SAN TR-50** per 100 liters of water), leaving the facility completely sterilized.

#### **Second stage.**

We have sterilized all access points to the production area such as:

**COOLINGS.**- We have sterilized the coolings with a 2% solution of active stabilized Hydrogen Peroxide (**4 liters of HUWA-SAN TR-50 per 100 liters of water**) to avoid any contamination of the facilities coming from the outside by air.

#### 4.- DISINFECTION IN COVER PEAT

Once we have added and extended the cover peat, we proceed to disinfect it with a solution of 1000 ppm Hydrogen Peroxide (**0.2 liters of Huwa-San TR-50 per 100 liters of water**), eliminating any other type of fungicide treatment.

Next day we add an insecticide irrigation in order to kill the larvae and mosquitoes in the mushroom.

Trials carried out with Huwa-San TR-50 on mushrooms

#### 5.- TREATMENT OF THE PACKAGES IN FRUCTIFICATION AND HARVEST

The **4th day** after having spread the peat on the package, we irrigate again the peat with a solution of 1000 ppm Hydrogen Peroxide (**0.2 liters of Huwa-San TR-50 per 100 liters of water**), replacing Prochloraz (in its different commercial brands) in our irrigation water, causing a satisfactory disinfection.

**Irrigations between flowering time.**- In each irrigation that has been necessary to apply (either between flowering and flowering, or those that have been necessary to apply, due to a lack of humidity in the peat), we have added a solution to 1000 ppm active stabilized Hydrogen Peroxide (**0.2 liters of Huwa-San TR-50 per 100 liters of water**), to prevent the occurrence of the diseases described above.

#### 6.- APPLICATION BY FOGGING

Due to the easy spread of the diseases described above, either by air (mainly in the form of spores), or by an accidental contamination of our facilities by contaminated clothes or shoes, we have daily disinfected our facilities by nebulisation with a solution of 1000 ppm active Hydrogen Peroxide (**0.2 liters of Huwa-San TR-50 for each 100 liters of water**) with a nebulizer at a daily basis and for a time of 30 minutes approximately.

#### 7.- CONCLUSIONS

1º.- We have observed the absence of the diseases previously described in point 1, once we have correctly applied the steps described above.

2º.- We have observed an **improvement in the quality of the mushroom**, obtaining a production where we have eliminated the mushroom “flake”, and obtaining a stronger mushroom, due to the oxygenation of the mycelium achieved with the Huwa-San treatment, both in the treatment in coverage, as in the irrigations at fructification and harvest.

3º.- We have observed that we can **replace the different treatment products** (Prochloraz, Orthophenylphenol, etc.), in the disinfection and production to only one product, since Huwa-San has bactericidal, fungicidal and sporocidal properties, acting very satisfactorily over the whole spectrum of diseases of the mushroom.



4.- Due to this substitution of products used, we will observe a **decrease in production costs**, which, depending on the commercial brands used, would be 30% lower by using Huwa-San, and in addition, **obtaining better results in production**.

In Villanueva de la Jara, on September the 26th, 2012

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