

Use of encroacher bush branches for mushroom production and determination of the nutritional value and fertiliser value of the spent substrate. Self-funded Research.



Woodchips that usually stand at the farms



Mushroom house

Materials and Methods

Soaking the three different substrates in water for 8 hours



Materials and Methods

Drying of the substrates for 2 hours



Materials and Methods

Weighing of the substrates before introduction in the bags in order to have the same amount of biomass per bag



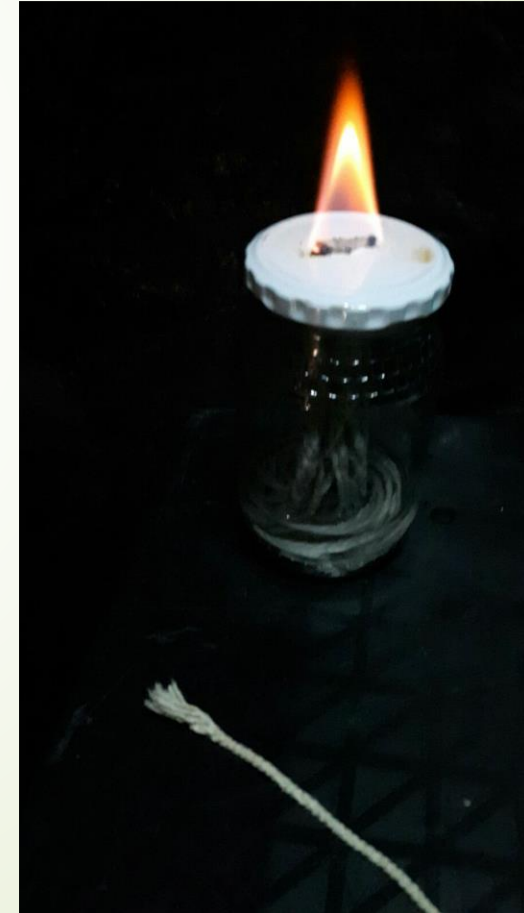
Materials and Methods

Pasteurization of the samples to avoid colonization by undesired microorganisms. 2 hours



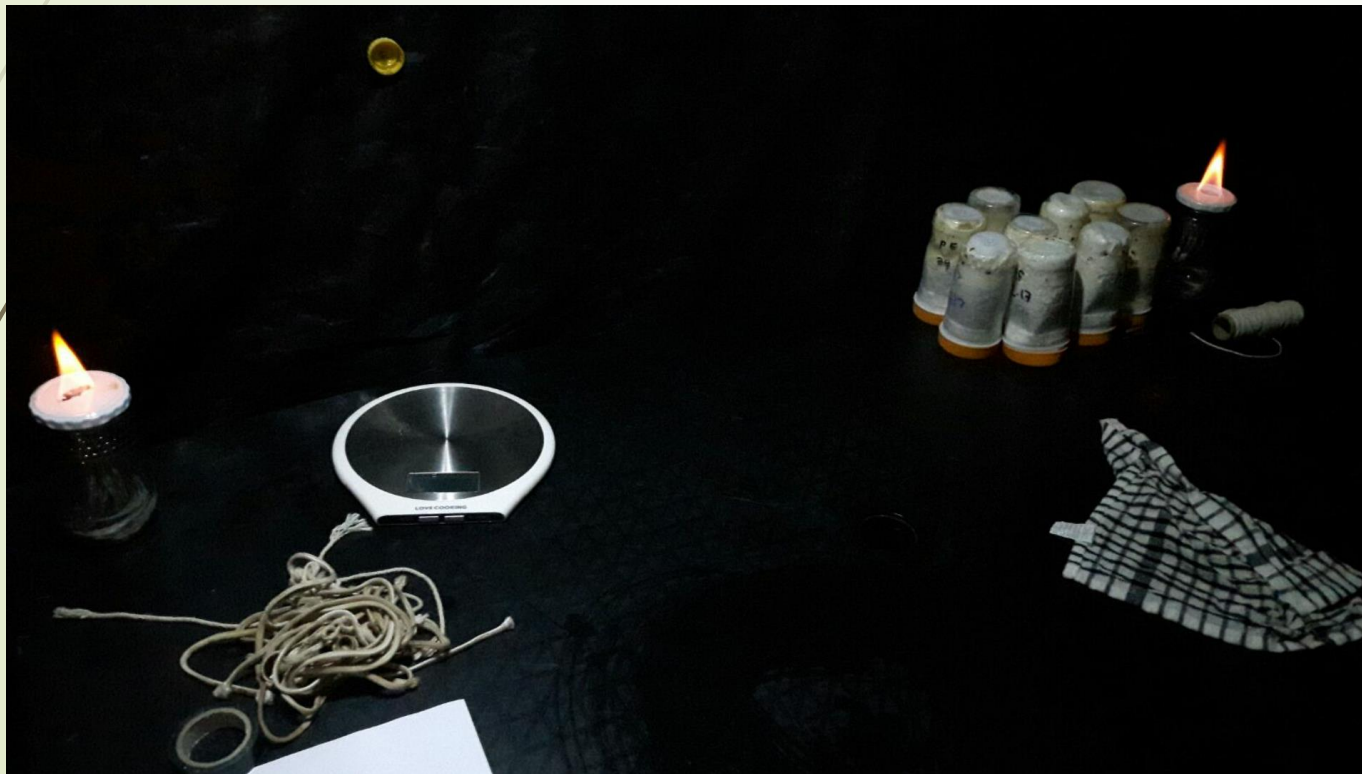
Materials and Methods

Inoculation in a dark and sterile environment using a traditional Bunsen burner



Materials and Methods

Inoculation in a dark and sterile environment using a traditional Bunsen burner



Materials and Methods



Samples after inoculation. Samples are covered for avoiding sun light.
9/03/2017

Results



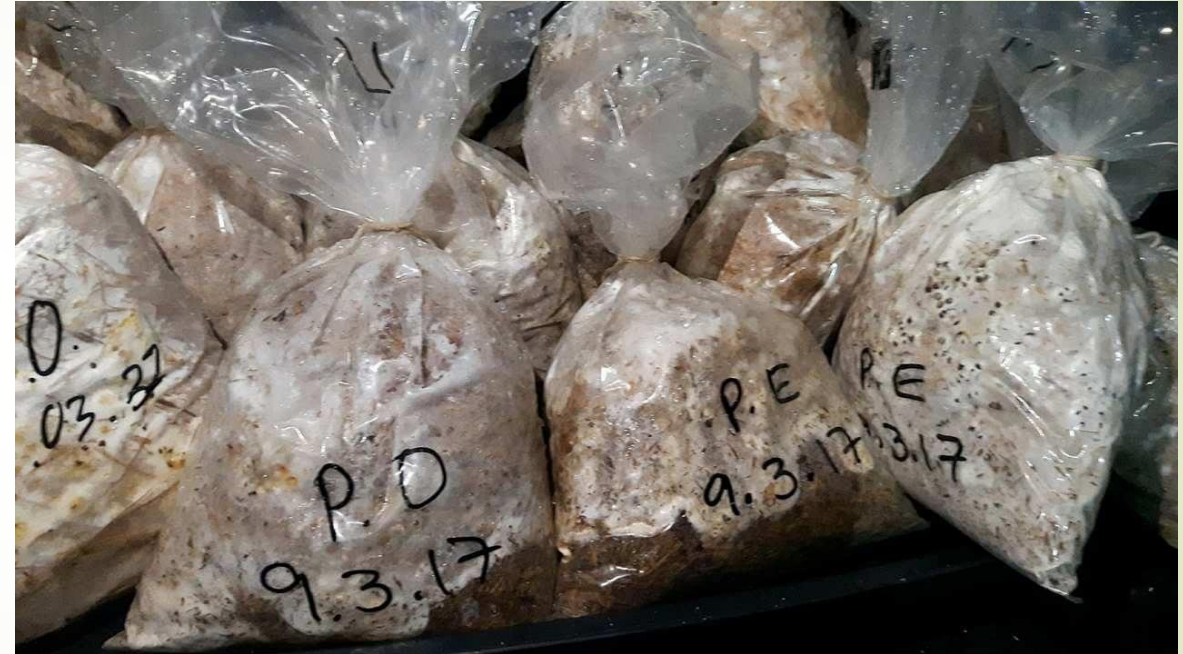
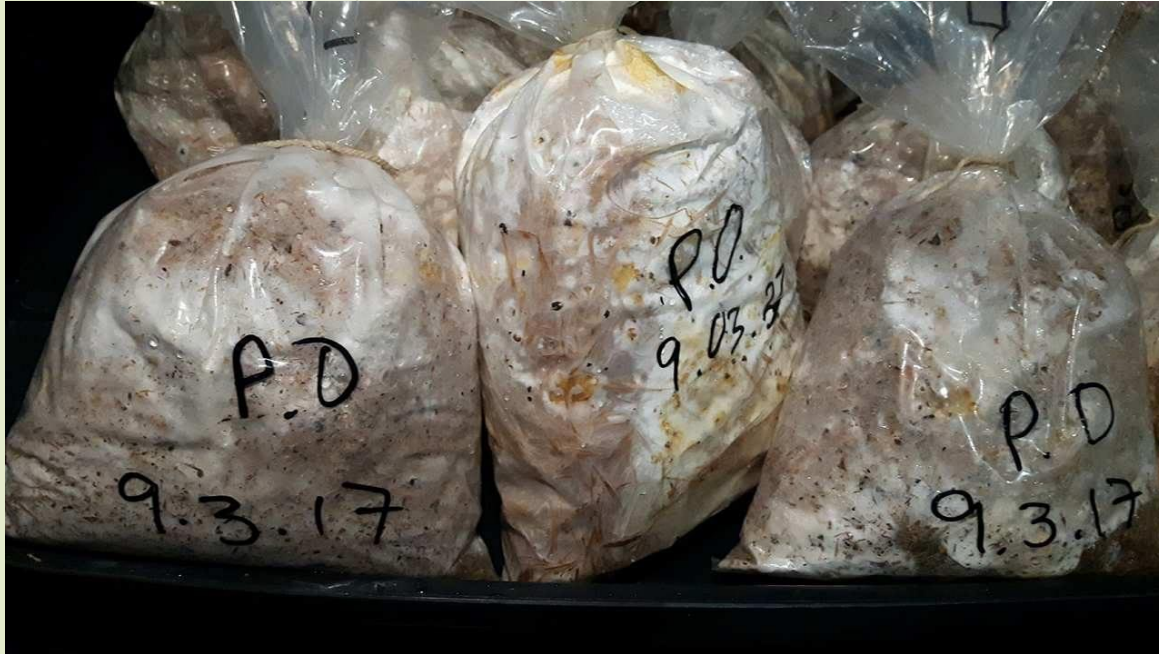
Status of the colonization the 6/03/2017.

Results



24/03/2017. Different growths on the different substrates by the different strains are observed. A screening to select the strain that grows faster on woodchips is needed.

Results



31/03/2017

Same strains have colonised differently on same substrates, suggesting that the differences can be due to human error or pollution while inoculating.

The fungi colonises faster on grass than on woodchips. The bags with grass were almost ready to hang. The 8 mm woodchips

Results



6/0472017

Approximately 2/3 of the bags were hanged. The majority of the bags containing grass were ready whereas the half of the bags containing woodchips were not.

The bags that were not ready were kept in a dark box covered.

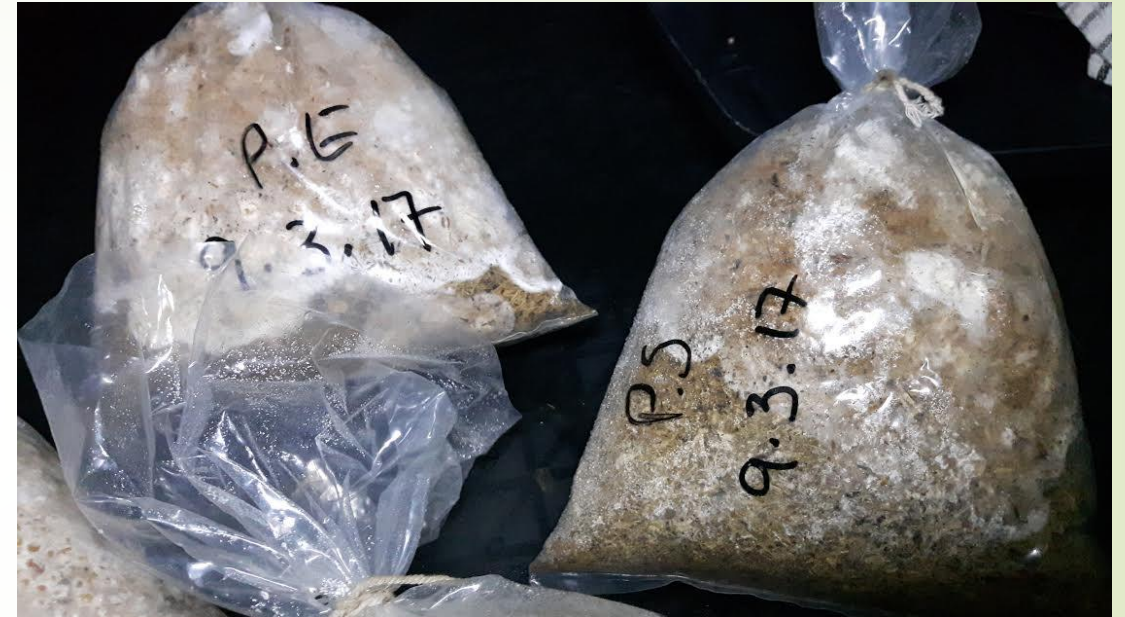
Results



6/0472017

Although initially it was thought that the differences in the colonization were due to the use of different strains, at this stage results suggest that they might be caused by human errors/pollution in the inoculation. (Pictures shows two bags with the same substrate, 10 mm inoculated with the same strain)

Results



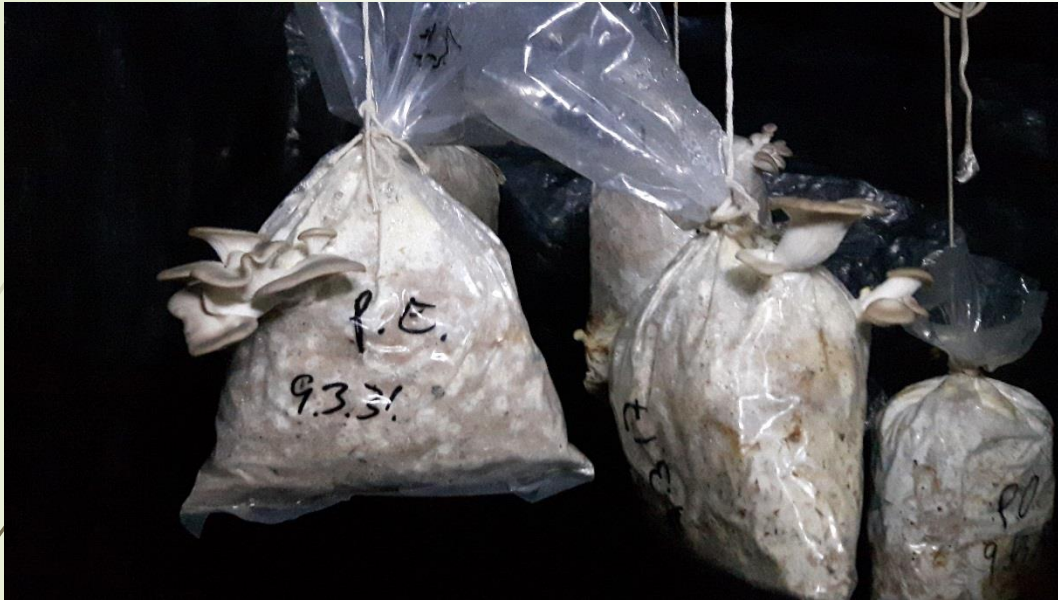
6/0472017

The major problem identified in the **10 mm woodchips** samples seem to be the inability of the fungus to colonize the whole bag. The substrate might be too dense. (Right side picture).

In **grass** and **8 mm woodchips** the problem seems to be different since the bags present a poor colonization but almost equally distributed (Left side picture).

Nevertheless there are samples of each substrate and of each strain that have perfectly colonized, suggesting that the **process is possible**.

Results



Right side: 10mm woodchips, left side: 8 mm woodchips

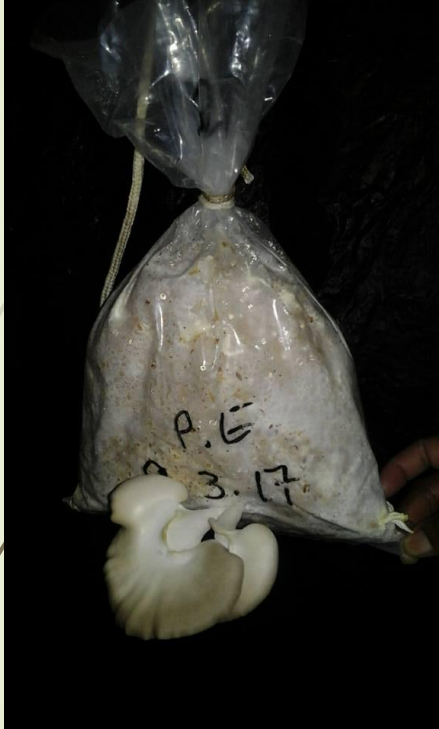
11/04/2017. The first mushrooms were out and ready to harvest. Paradoxically more mushrooms were harvested from the woodchip samples than from the grass.

The majority of the bags kept in the box were ready to hang.



Grass

Results



23/04/2017. Despite all the problems presented during the colonization more mushrooms are growing on woodchips than on grass. Besides the quality of the mushrooms grown on woodchips seems better.

The rest of the bags but 2 were hanged since the colonization process has advanced and they are ready.

Conclusions

- The **colonization** process of Pleurotus on woodchips is **slower** than on grass, probably due to the higher density of the substrate. The space formed in grass bags seem to favour the colonization.
- However, Pleurotus seems to **grow faster on woodchips** than on grass.
- The **quality** of the mushrooms seem **comparable** on the three substrates.
- Namibia is specialised in producing oyster mushroom on grass, therefore the process and the strains available are meant to use grass as substrate. Hence research should be conducted to adapt the process to the new substrate as well as to identify strains that prefer woodchips.
- The value of the spent substrate as fertilizer and animal feed will be only tested at the end of the experiment.
- The spawns provider still needs to check the concrete species.

Thanks for your
attention!

