



**LALCocoa™**  
Unlock the flavor

### What is cocoa fermentation?

- Cocoa fermentation is a key step in the whole process of cocoa making. After opening the pods, this biochemical process consists of the degradation of the mucilage from the fresh beans (demucilagination step), leading to the death of the embryo. This fermentation is done thanks to the succession of microorganisms' action, with yeast as major player.
- During the cocoa fermentation, these microbes produce several metabolites such as alcohol, acetic acid, lactic acid and aromatic compounds. All of them contribute to the cocoa sensory profile.
- The fermentation step has a big impact on the final cocoa quality, indeed it contributes directly to the sensory characteristics of the cocoa. The better the fermentation process is controlled via the use of LALCOCOATM Active Dry Yeasts, the better the quality of the dry cocoa beans will be.

### Are all the yeasts the same and do they have the same impact?

- No, each yeast is unique and has its own metabolism influencing the sensory quality.
- Not all yeasts are well adapted or suitable to cocoa fermentation.
- LALCOCOATM yeasts have been characterized and selected for their ability to improve cocoa fermentation and the quality of the cocoa beans. A lot of studies were performed in collaboration with technical and research centers recognized by the cocoa industry.

### Why use LALCOCOATM yeast in my cocoa fermentation?

Yeasts will help to:

- Better control the fermentation, reducing the time necessary to have well fermented cocoa beans
- Unlock and enhance aromatic flavors of the cocoa beans thanks to yeast's properties that produce aroma compounds during fermentation. Different flavors are expressed, impacting on the cocoa's sensory profile. Depending on the yeast used, the degree of positive impact attributed to the yeast varies from yeast to another. This phenomenon is well documented and proven in wine, beer and other fermented beverages and products.

# Frequently asked questions

## COCOA FERMENTATION & LALCOCOATM YEASTS

### How to rehydrate LALCOCOATM yeasts?

- Yeasts have been dried to make their transportation and storage easy. They have to be rehydrated before being used.
- Rehydrate the yeast in 10 times the volume of water (10 liters for 1 kg of yeast).
- Rehydration water must be clear (no smell, no chemicals inside), and used at room temperature (never below 15°C). For an optimal fermentation, it should be rehydrated between 20 and 35°C.
- Stir gently the yeast and water to avoid lumps.
- Leave for 20 minutes.

### What do I do if lumps are present?

This can happen sometimes for several reasons: some yeasts are difficult to homogenize, sometimes the water used is too cold or has been added too fast. The solution is to stir again (gently) after 10 minutes of rehydration, then let it rest for 10 more minutes to complete the rehydration.

### Why do some yeasts foam more than others?

Yeast foaming ability is generally related to its genetic make-up and the composition of the fermentation medium. During rehydration, some yeast will foam more or less than others. This is normal and it is not necessarily an indicator of the yeast's activity.

### How much yeast should I use for a good fermentation?

The optimal dosage is 2g per kg of fresh cocoa beans. Otherwise the ratio could be adjusted depending on the water quality used for rehydration.



### How and when do I inoculate my cocoa beans?

- Inoculation (addition of rehydrated yeasts to the cocoa beans) has to be done when you put the fresh cocoa beans into the tank for fermentation. Depending on the quantity of cocoa beans being fermented, the addition of rehydrated yeast in the fermentation tank can be adapted.
- Up to 300 kg: put cocoa beans in the bin then add the yeast at once and stir. Bin must be free of any chemicals or other compounds that could give flavors to the cocoa.
- From 300 kg to 1000 kg, add the yeast in three parts, at each third of the tank add a part of the rehydrated yeast and stir to homogenize.

After filling the tank, cover with sacks or banana leaves to promote anaerobic conditions.



- Once the yeasts have been rehydrated, never leave it at ambient temperature for more than an hour. You need to foresee the filling of the tank, so you can rehydrate the yeasts accordingly - a batch at a time. For example, if a tank takes 4 h to be filled and you would like to make 3 inoculations, it will be better to do the yeast rehydration just before each inoculation.



- Depending on the cocoa variety, you may have to adjust the quantity of pulp before starting the fermentation. For example for CCN-51, it is recommended to remove part of the mucilage before inoculating the tank.

### How long should a good or optimum fermentation take?

- We recommend minimal fermentation duration of 8 days as the maximum duration depending on the mucilage amount ; the optimum is between 5 and 6 days to obtain the maximal aromatic expression by LALCOCOA™ yeast.
- To control the efficiency of your fermentation you can check via the cut-test among ten beans (five taken on the surface and five taken in the middle of the tank). If more than seven are well fermented (brown inside) you can stop your fermentation and start the drying.

### Should I do my fermentation with LALCOCOA™ yeast in open or closed tank?

It will be more efficient if you protect the cocoa beans from oxygen during fermentation duration. A regular turning will add enough oxygen to perform acetic fermentation.

### What happens in case of yeast overdosing?

- Overdosing will have no impact on final cocoa quality.
- It will not reduce fermentation time.
- On the other hand, by using a lower dosage of yeast, the impact on the fermentation efficiency and on the sensory quality of the cocoa beans will be reduced and more comparable to cocoa quality obtained without addition of yeast.

### How do I store the active dry yeast?

- You must keep the yeasts' bag in a cold and dry place (the best condition is at 4°C).
- Avoid storage in a hot place (up to 30°C) for more than 6 months.
- Once the bag is open, close as tight as possible and use within 15 days. Keep in a dry and cool environment.

### What are the benefits of using yeasts compared to enzymes?

Yeasts have native enzymatic activities that will speed up demucilagination during the early stages of the fermentation. Thanks to their metabolism, they are also able to ferment and at the same time synthesize and release aromas from precursors. Each strain will act differently on the expression of cocoa flavors. The tasting shows higher sensory quality with LALCOCOA™ Yeasts.

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