Fermentation

From the seed to the bean.

Fermentation is when biological materials or foodstuffs are altered by enzymes. These are either already contained in the fruit, as is the case with cacao, or are added in the form of bacteria, yeasts or fungi, for example as when grape juice ferments to form wine, or milk becomes cheese or yoghurt. 

It is the fermentation of the cacao seeds which creates the flavour precursors which later form into the typical cocoa taste. Among other things, the length of fermentation is determined by the cacao variety, the quantity, the technique and climatic conditions, and varies between 3 and 8 days. It is divided into three stages:

THE ANAEROBIC STAGE
First, the sugar in the fruit flesh is broken down with the help of yeast. This creates alcohol. The pulp liquefies and separates from the cacao seeds, which start to germinate and produce enzymes which later determine the taste.

**THE AEROBIC STAGE**

The air which now enters between the cocoa beans oxidises the alcohol, forming acetic acid, and the temperature rises to 45 to 50°C. This kills off the cacao seeds and they turn into cocoa beans.

**THE POSTMORTAL STAGE**

At this stage the proteins in the dead seeds are split by enzymes, creating essential precursors to the cocoa flavour. This is also the stage when the cocoa beans change colour from purple to brown.

The classic method is heap fermentation. This involves the white pulp being spread out with the cacao seeds on banana leaves and covered with another layer of leaves. On some plantations the cocoa beans are also put in baskets (basket fermentation) or barrels (barrel fermentation). The advantage is that the cocoa beans do not fall prey so easily to pests. Today, fermentation in large wooden boxes is especially widespread (box fermentation).