INFLUENCE OF DARK CHOCOLATE PROCESSING IN SENSORY QUALITY: CONCHING STEP INFLUENCE

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Introduction

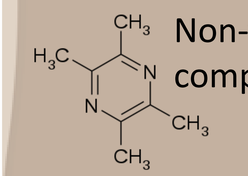
Dark chocolate is consumed worldwhile due to his particular **sensory properties**. Many stages of manufacture have an influence on sensory quality such as fermentation and roasting.

However this work is focused on conching because it is the **last** opportunity and for some manufacturers the **only** opportunity to modify the sensory properties.

Aim

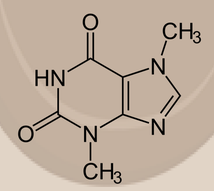
To identify the relationship between the manufacturing process and quality parameters.

Sensory quality characteristics



Non-volatile compounds

Volatile compounds



Flavour

Appearance

Texture

Particle size (<25µm)

Stages of influence on sensory quality

Fermentation → Flavour precursors (enzymatic hydrolysis)

Drying → Flavour development (oxidising reactions)

Roasting → Flavour development (Maillard reactions)

Conching

Tempering → Appearance and texture quality parameters (crystallisation)

Conching → long-term heat treatment, mechanical forces and addition of fat and emulsifiers

1. Flavour

- Remove volatile acids and flavour
- Reduce bitterness
- Redistribution of flavour

2. Texture

- Solid → liquid (coating particles in fat)
- Reduce viscosity (reduce moisture, fat and emulsifier addition)

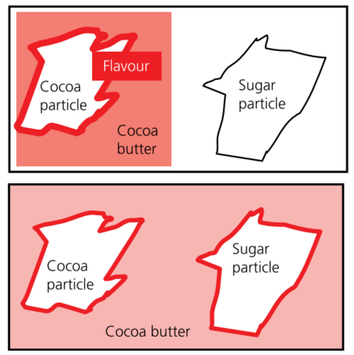


Figure 1. Distribution of flavour compounds (Beckett *et al.*, 2017)

⚠ Venting and speed of moisture extraction

3. Colour

- Emulsification and oxidation of tannins

Conclusion

Conching is crucial to **improve** sensory quality.

However, **fermentation and roasting** are the most important stages in flavour development.

Small manufacturers have to **analyse the raw materials** (cocoa mass and cocoa butter)→In the near future, analytical instruments will be improved.

Bibliography

Beckett, T., Fowler, S., & Ziegler, R. 2017. Industrial Chocolate Manufacture and Use, [Online] 5th Edition. United Kindom: Wiley blackwell, 760p. [Accessed October 31, 2020]. Available at: https://doi.org/10.1002/9781118923597