

## HAFL Master's Thesis Abstract

*Year:* 2020

*Student's Name:* **María Camila Villarreal Cruz**

*English Title:* **Comparison between the techno-functional properties of the plant-based beverages offered and Cow's milk in the Swiss market**

*English Summary:* Cow's milk has always been considered as an important source of nutrients. Recently, plant-based alternatives have won the interest of consumers. The objective of this study is to make a comparison of the properties from the plant options against milk and evaluate if they can be considered as alternatives in a techno-functional aspect. The parameters evaluated are pH, viscosity, color, particle size distribution, long term stability, foaming properties and the influence of phytic acid on them. Results showed that plant-based beverages had on average a pH between 6.63-7.52 and 6.61 for cow milk, viscosity values were from 1.95 to 13.92 mPa·s for the alternatives and 2.10 for milk. The whiteness index for the plant-based beverages was between 63.42 and 75.48, whereas for milk was 81.54. For the particle size distribution, D50 values for the alternatives were in the range of 1.81 to 8.58  $\mu\text{m}$  and milk presented an average D50 of 0.58  $\mu\text{m}$ . Sedimentation was the main problem for samples belonging to soy, almond, cashew and hemp with a D50 around 8  $\mu\text{m}$  while creaming affected samples coming from hemp, spelt, cashew, almond and coconut. Foam height and bubble radius were influenced by temperature; higher temperatures gave an increase on both parameters. Interestingly, the phytic acid content affected the foaming properties. Soy and almond beverages have more similarities to milk since they have been more thoroughly studied and developed than the rest but further analysis is required to demonstrate the potential of alternative beverages to be considered as substitutes of cow's milk.

*Original Title:* **Comparison between the techno-functional properties of the plant-based beverages offered and Cow's milk in the Swiss market**

*Summary in original language:*

*Keywords:* Cow's milk, Plant-based beverages, Techno-functional properties, Foam structure, Phytic Acid

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