A MULTICRITERIA FOOD REFORMULATION APPROACH FOR CHILDREN AGED 7-12 YEARS OLD TO MAKE A HEALTHIER PRODUCT WHILE MAINTAINING SENSORY PERCEPTION AND LIKING

SUMMARY

In Europe, over 10% of children aged 5-19 are now living with overweight and obesity. Food reformulation is one lever to move toward offering children healthier food. Although faced with many challenges, we aimed to consider food reformulation as a holistic approach and to propose a multicriteria approach to develop healthier chocolate-chip cookies for children, while maintaining sensory perception and liking.

First, we studied the recipe diversity of commercial cookies in France, considering nutrition, composition, economic, water content, and sensory information to identify key opportunities for reformulation. Then, sensory-led formulation of cookies was proposed, based on a mixture design including four key ingredients (sugar, fat, chocolate-chips, oat bran), combined with baking degree factor.

Thirty reformulated cookies were thus developed and characterised on multiple criteria, including in vitro glycaemic index or texture evolution. In addition, children's perception, satiation, and liking were evaluated for four of these reformulated cookies. This work led to sensory modelling and recipe optimisation, allowing the creation of healthier recipes with a positive impact on liking and health.

As a main result, this approach led us to propose a possible reduction of the kcal (-5.9%), sugar (-15.9%), fat (-24.7%), and chocolate-chip (-20%) per cookie and increase in oat bran (+49.2%), with also improvement of the calculated glycaemic index (-8.2%). A sustained level of satisfaction was confirmed by children. This multicriteria food reformulation approach might reinforce food reformulation as a promising tool to improve the healthiness of children's diets.

Science and Technology in childhood Obesity Policy

For more information, visit **www.stopchildobesity.eu**

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