

# NATURALLY OCCURRING SUGAR CONTENT IN COMMERCIAL INFANT FRUIT-BASED PRODUCTS IN 4 COUNTRIES. A NUTRITIONAL BENCHMARKING STUDY

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## INTRODUCTION

Extant research shows food preferences formed in infancy shape later food preferences<sup>1</sup>. Today's infants are exposed to a much sweeter environment than any previous generation, which may ultimately lead to obesity and associated diseases<sup>2</sup>. The preferences for sweetness in specific foods can be influenced by prior exposure to those foods early in life<sup>3</sup>.

During the first 2 years of life, commercial infant foods are widespread used in developed countries<sup>4</sup>. As fresh fruits, commercial infant fruit-based products (CIFBP) are an important source of naturally occurring sugars, since most of the energy is coming from sugar.

The objectives of this study were:

- 1) to compare the naturally occurring sugar content of CIFBP marketed in United Kingdom, the United States, Spain and Sweden and,
- 2) to compare them with naturally sugar content in fresh fruit.

## METHODS

In this cross-sectional study (Figure 1), CIFBP targeted to infants under 1 year and from the main infant food manufacturers in the UK, Spain, Sweden and US were analyzed. Nutritional data was collected from the information declared in the food labels and available on the manufactures' websites. All products included were spoonable fruit purees with a minimum content in fruit of 95%. Fruit juices & fruit drinks were excluded. The CIFBP included in the analyses represented more than 85% of the commercial infant food market in each country. For the total sugar content estimation in fresh fruit, we calculated the mean of the 15 most frequently used fruits and we collected the nutritional data from USDA database. All data were collected between August and October 2016. Sugar content was evaluated in g/100 g.

Statistical analyses were performed using SPSS data software (v.18.0). One-way ANOVA was carried out to test whether the four countries differed in their sugar content of the CIFBP selected.

## CONCLUSION

- Our findings show that infants (under one year) have a **higher probability to be exposed to a "sweeter environment" in Spain and USA, as compared to UK and Sweden**, where CIFBP have a similar sugar content to the mean content in fresh fruits.
- These differences could be related to **different use for sweeter fruits** (e.g., banana or grape juice) **vs. less sweet fruits** (e.g., apple and red fruits).
- Sweetness exposure is linked to sweeter food preferences later in life. Thus, there is **challenge and an opportunity for infant food manufactures to make the naturally occurring sugar content of their CIFBP more similar to the mean content in fresh fruit**.
- The use of different, less sweet, fruit types would not only improve the range of flavors offered to consumers (infants and their parents), but also would have important positive public health implications.

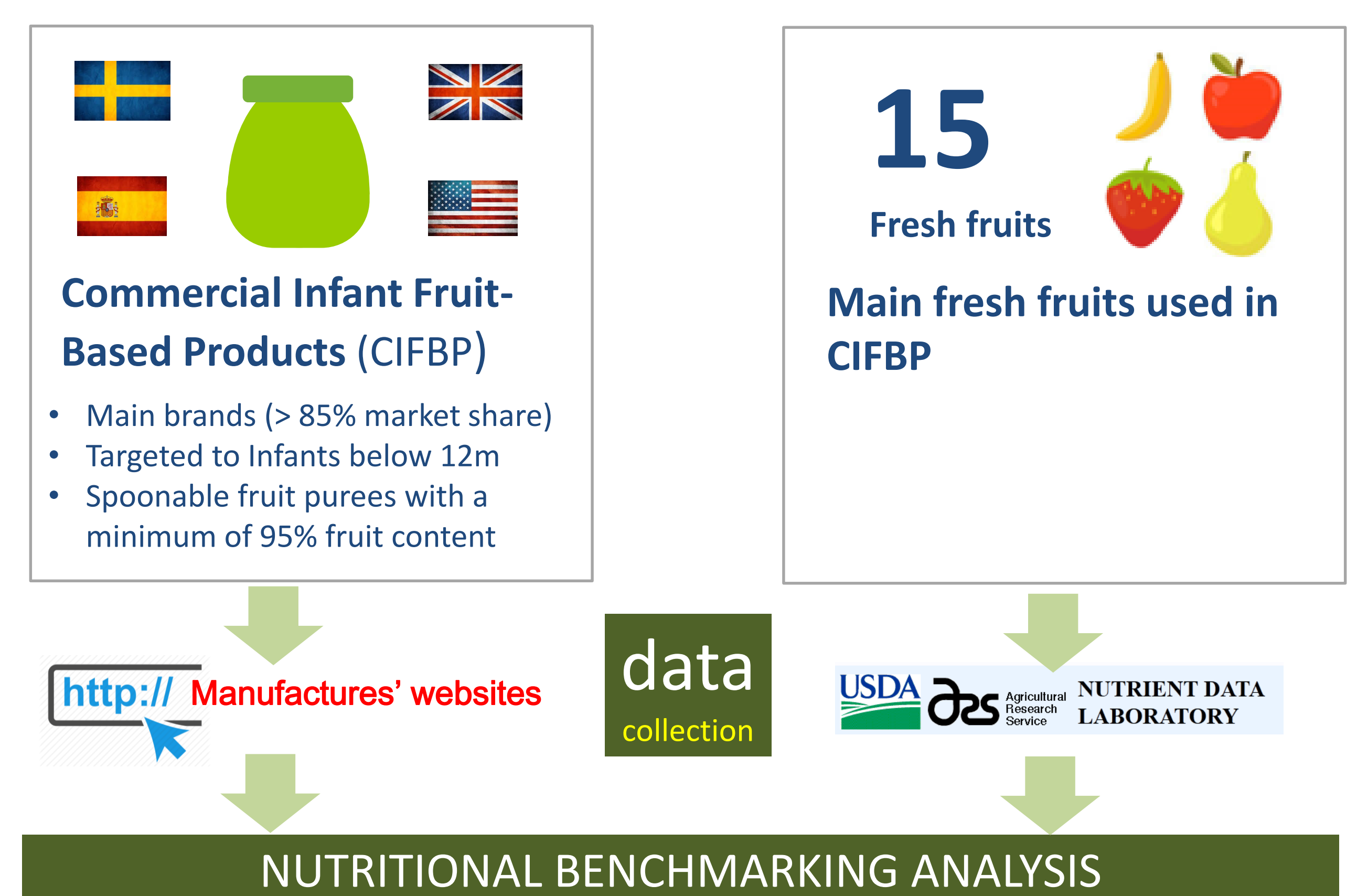


Figure 1. Study framework.

## RESULTS

A total of 305 CIFBP were analyzed in 4 countries (Table 1).

- The naturally occurring sugar of the CIFBP marketed in Spain and US was significantly higher than in the other countries ( $p < 0.05$ ).
- The estimation of the mean naturally occurring sugar content in fresh fruit was 10.39 (2.94) g/100 g.
- CIFBP marketed in US and Spain were significantly higher (21 % and 20 % respectively) than the mean content in fresh fruit ( $p < 0.05$ ) (Figure 1).

Table 1. Naturally occurring sugar in CIFBP in 4 countries. Data are expressed as mean (sd).

Country	Nº products	Sugar Content (g/100 g)
Spain	59	12.45 <sup>a</sup> (1.94)
Sweden	65	10.54 <sup>b</sup> (2.17)
UK	79	11.03 <sup>b</sup> (2.65)
USA	102	12.54 <sup>a</sup> (2.79)
All	305	11.71 (2.62)

Different letters within row indicate significant differences among countries ( $p < 0.05$ ).

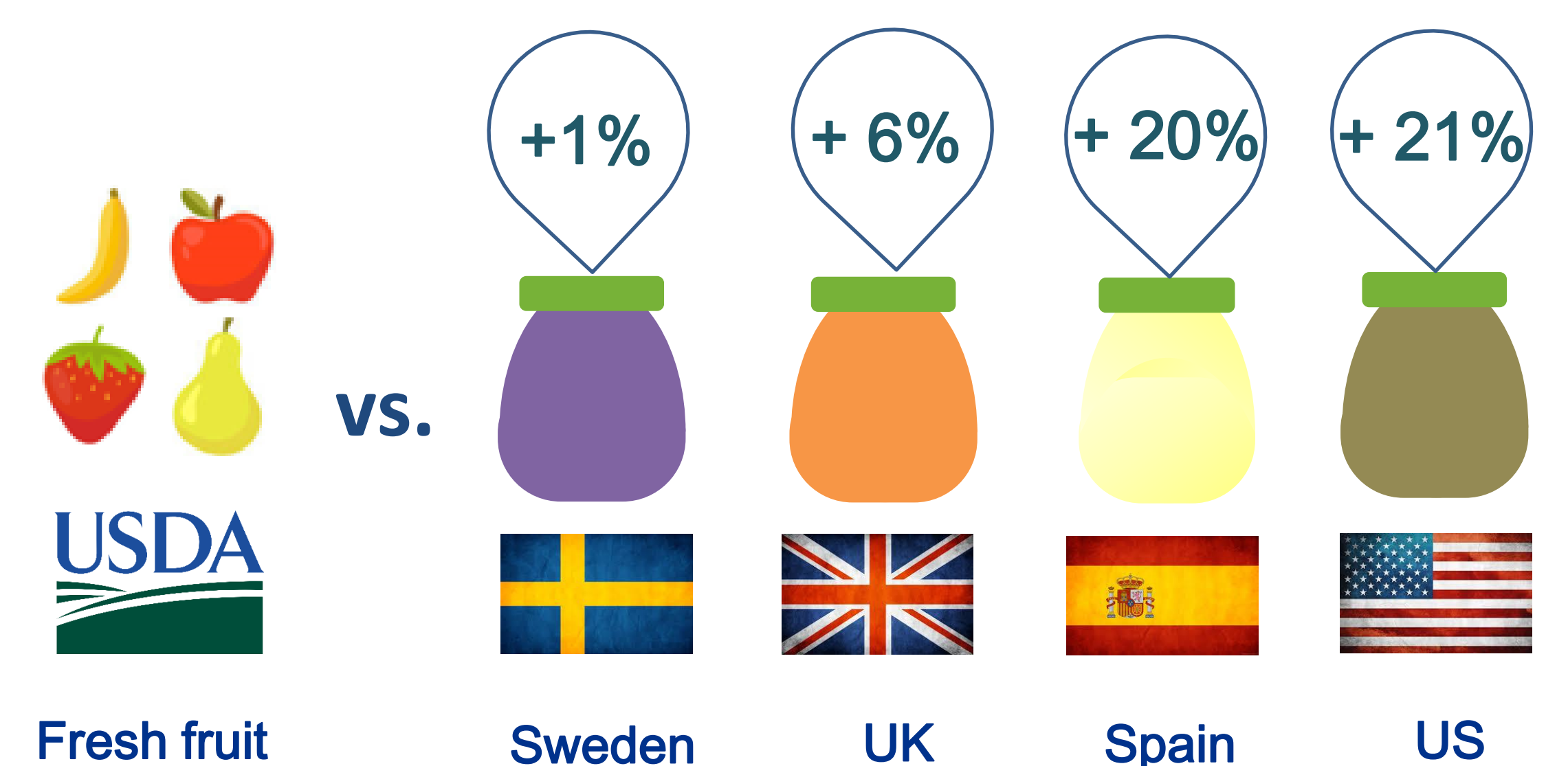


Figure 2. Sugar content of CIFBP by country in relation with sugar content in fresh fruit.

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### Disclosure of Interest

L.M. Sanchez-Siles, M.J. Bernal, J.F. Haro, S. Bodenstab: Conflict with Hero Group. S. Roman: None Declared