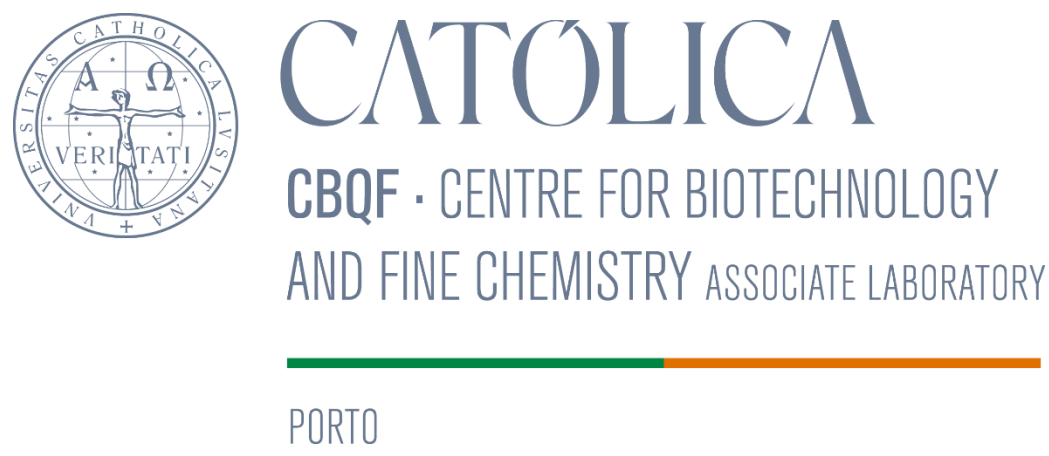


## Breakfast Cereals: Insights into Market Diversity, Nutritional Value, and Potential Innovation



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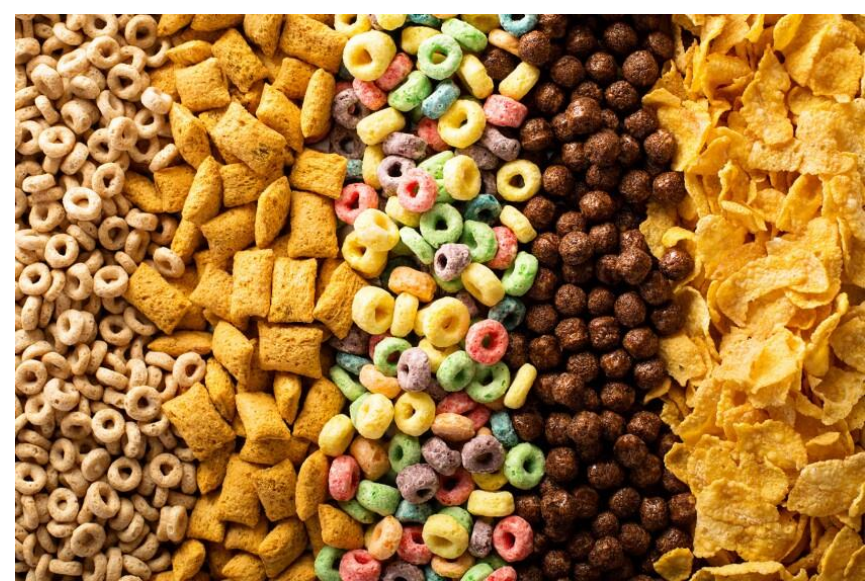
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### INTRODUCTION

The breakfast cereals (BC) market is experiencing steady global and national growth, including in Portugal, where consumption is widespread due to convenience and variety. Despite their popularity, many BC lack an optimal balance between taste and nutritional quality, particularly for children. Research shows that only a small fraction of BCs meet the nutritional standards required for child-targeted marketing, indicating a need for reformulation to reduce sugars, fat, and salt while increasing dietary fiber - an area where Portuguese BC fall short. This review explores the nutritional quality of 178 different BC from 23 brands available on-line on the Portuguese market collected and based on the most recent literature, find out how it is possible to innovate to respond to market needs.

### METHODOLOGY



#### DATA COLLECTION

Nutritional facts  
Nutri-Score  
Nutritional Claims

#### DATA ANALYSIS

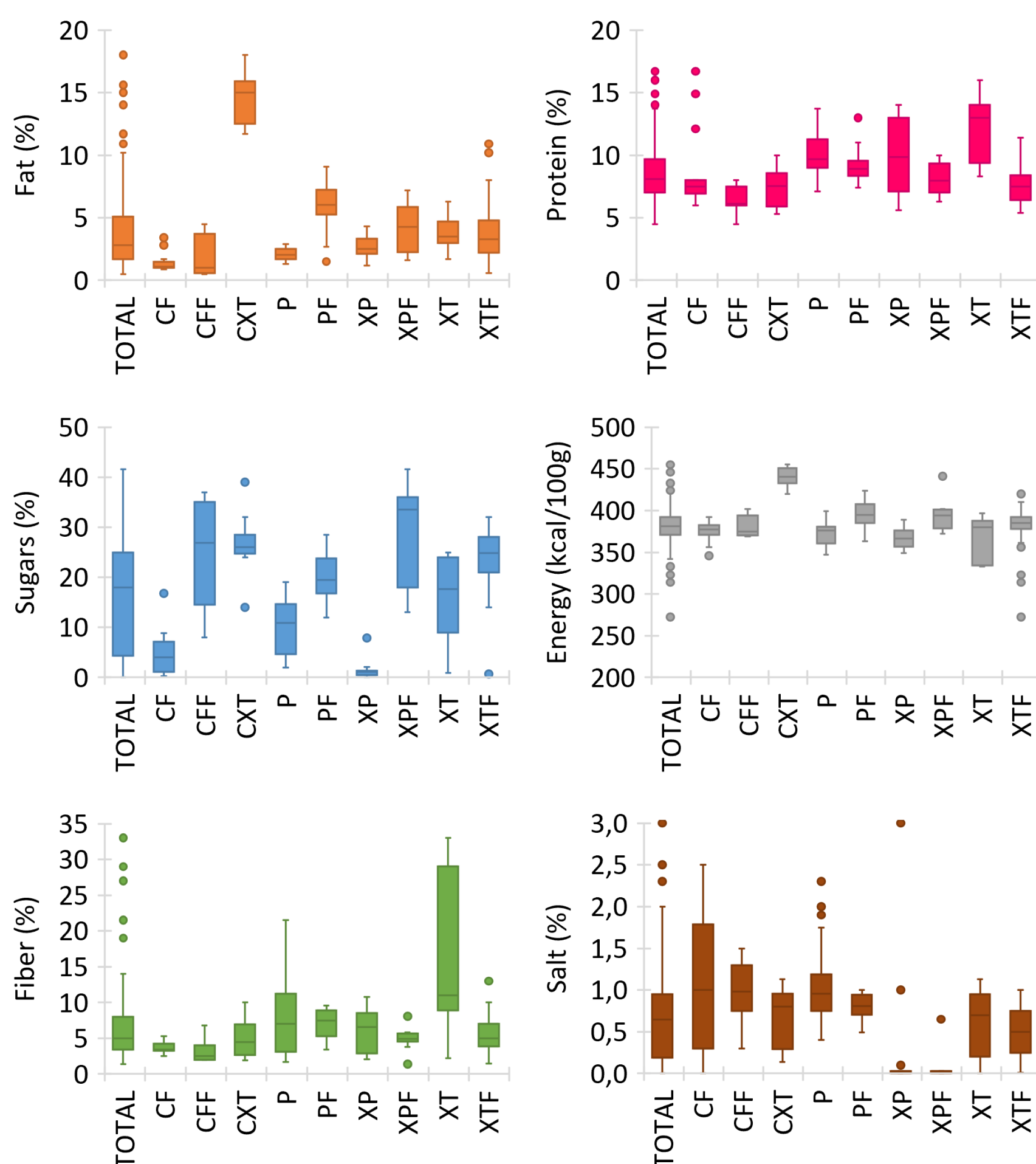


**TPOLOGY:** Cornflakes (CF); Flavored cornflakes (CFF); Co-extruded (CXT); Petals (P); Flavored petals (PF); Expanded (XP); Flavored expanded (XPF); Extruded (XT); Flavored extruded (XTF)

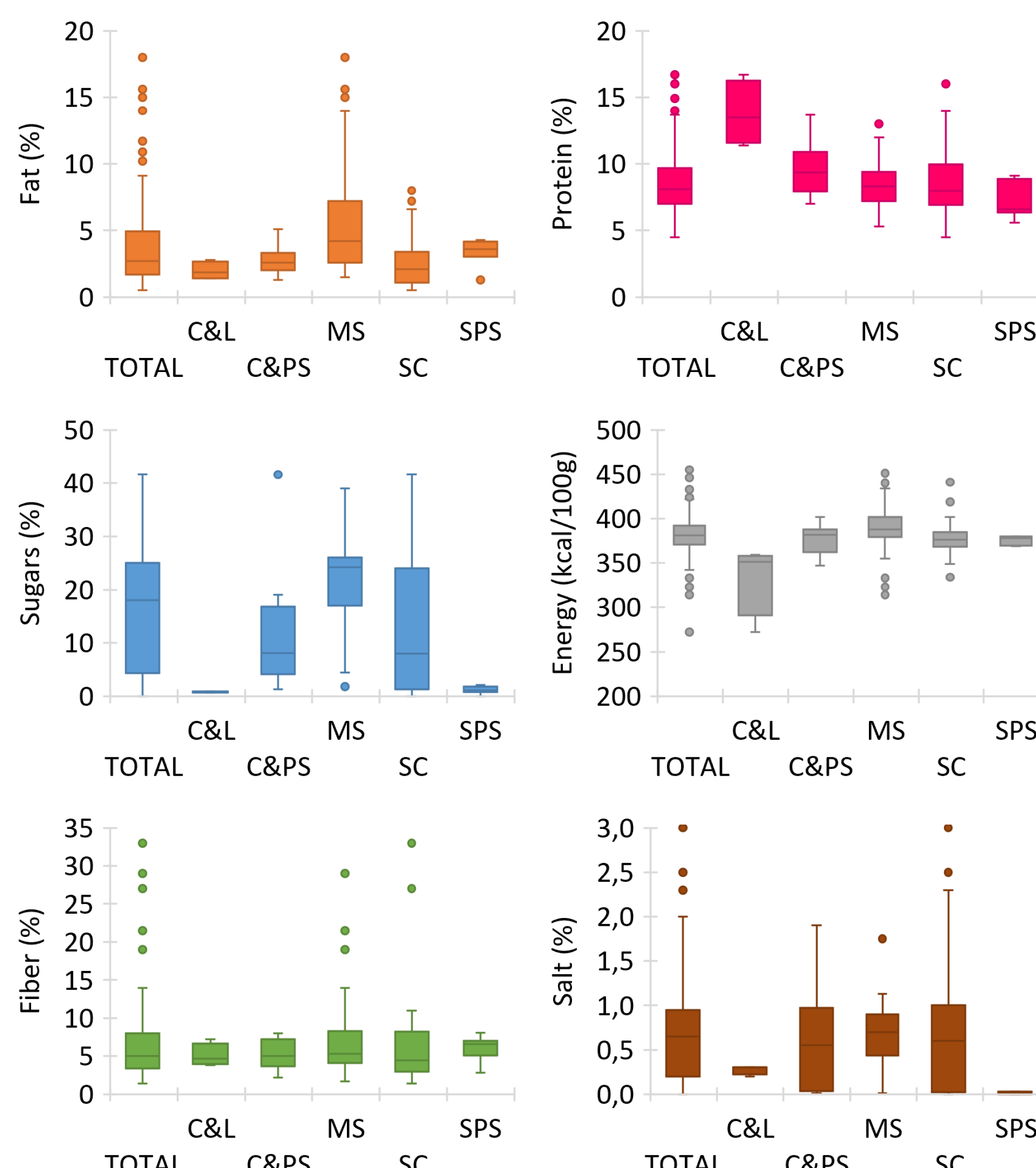
**FORMULATION:** Cereal & legumes (C&L); Cereal & pseudocereals (C&P); Multi-cereal (MS); Single cereal (SC); Single pseudocereal (SPS)

### RESULTS

#### TPOLOGY

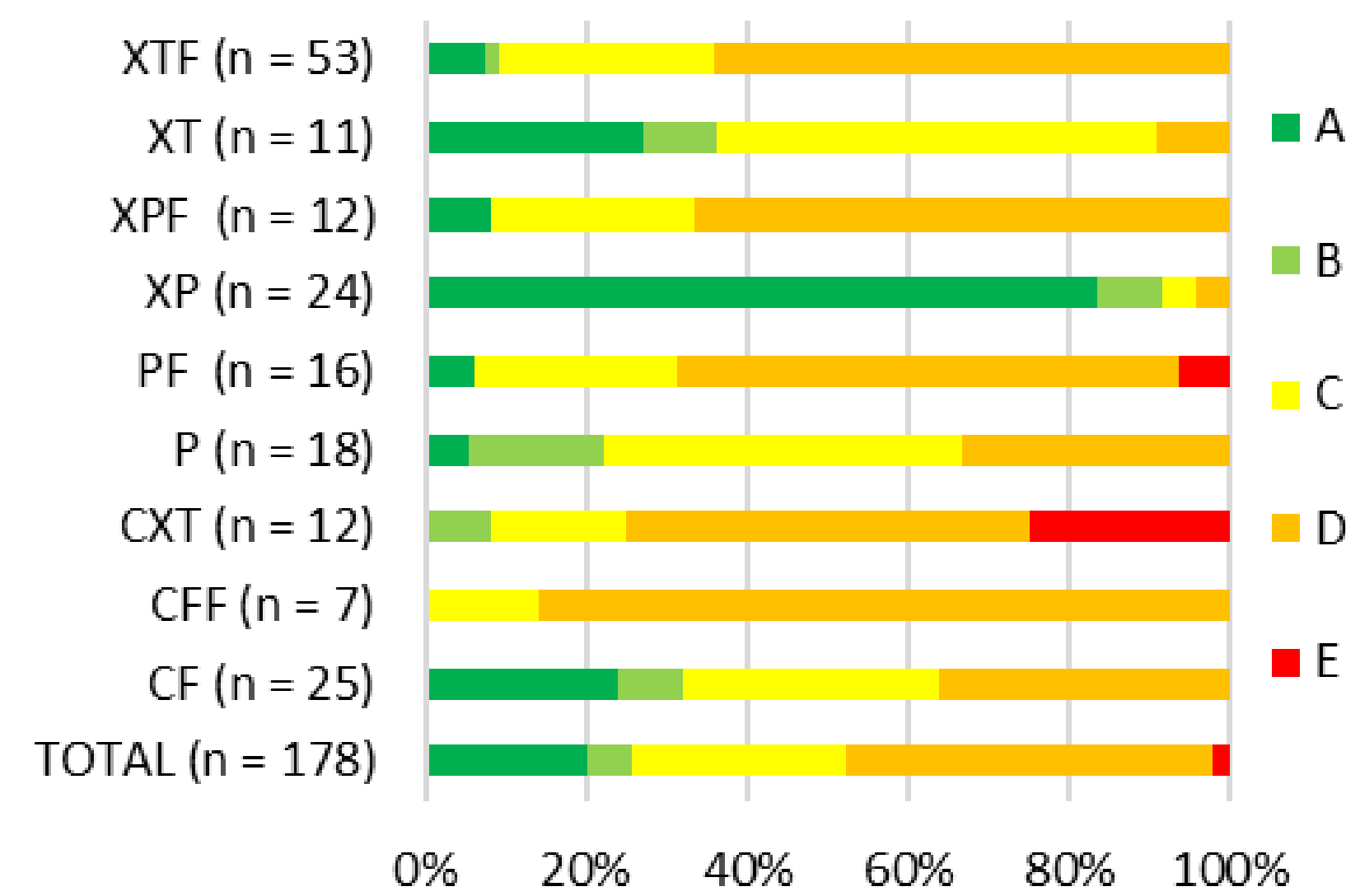


#### FORMULATION

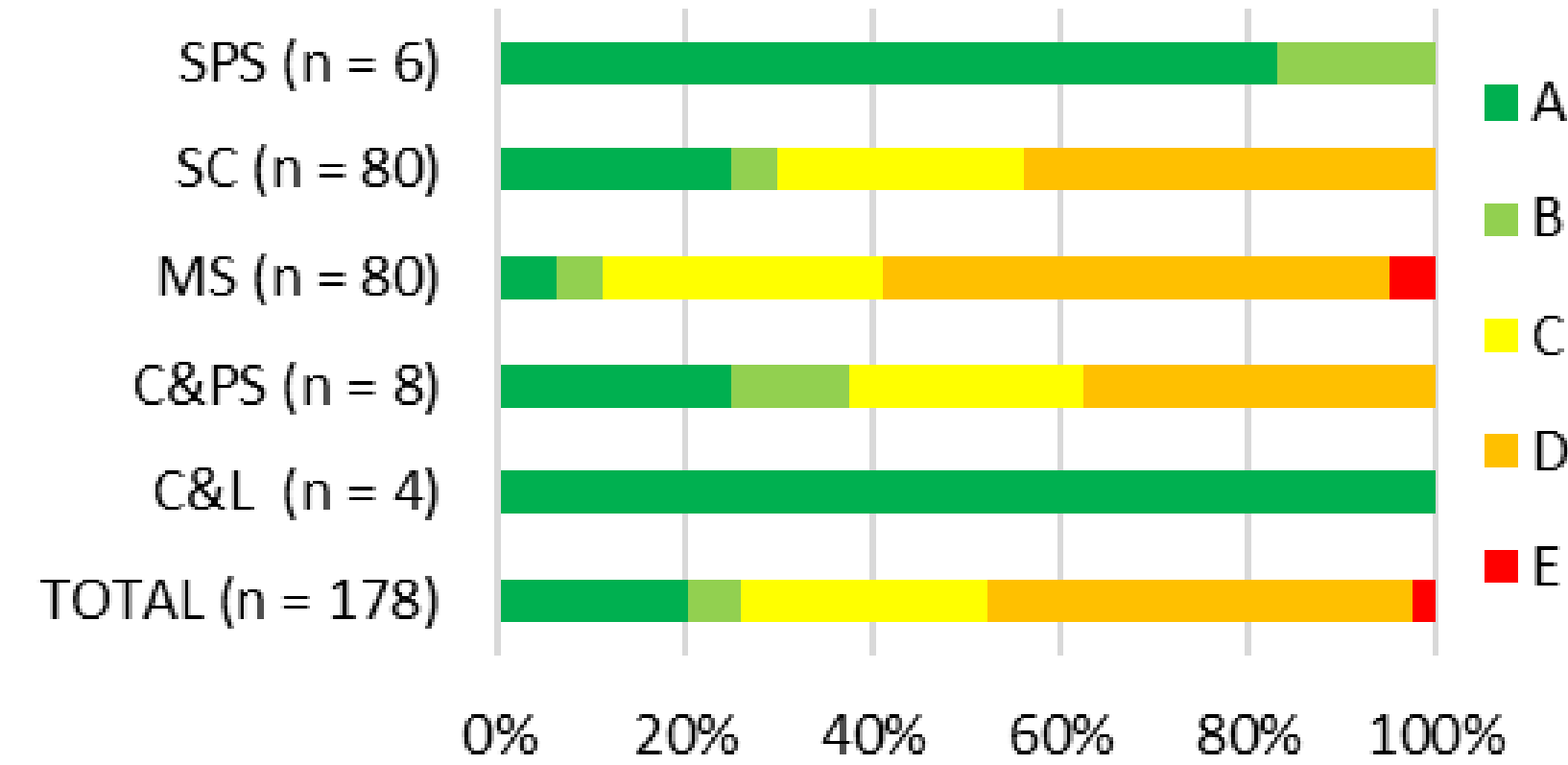


### NUTRI-SCORE

#### TPOLOGY

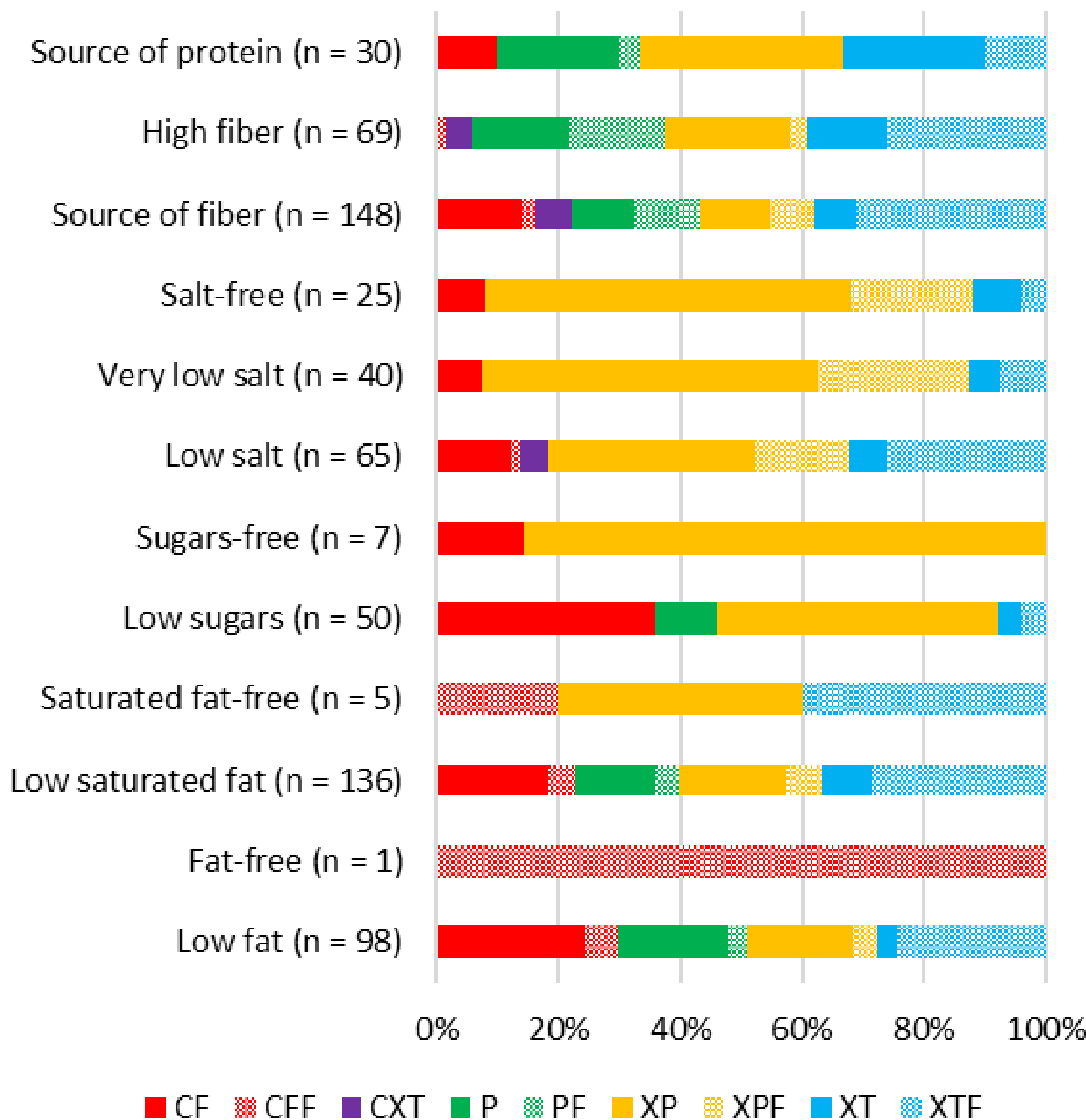


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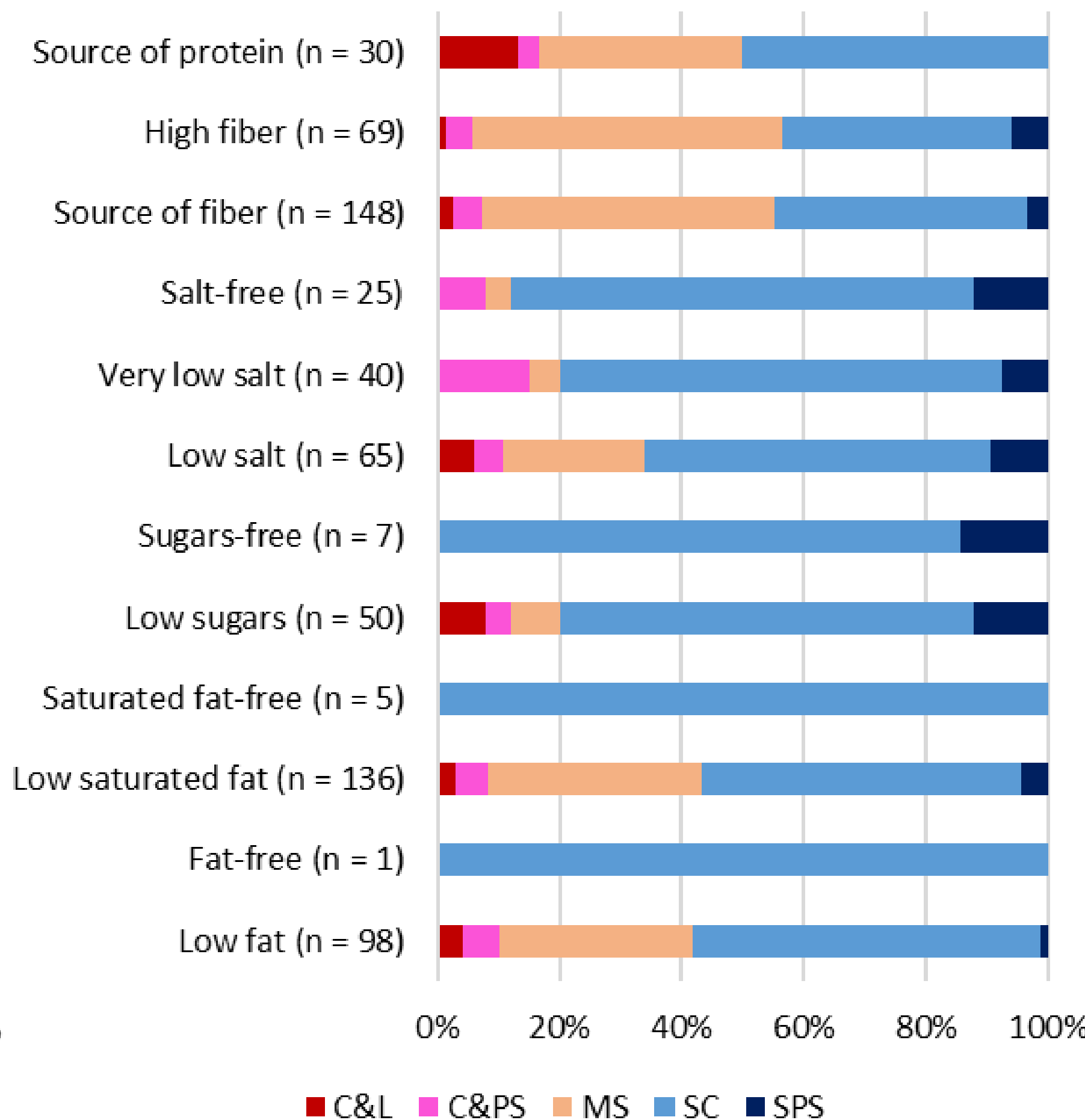


### NUTRITIONAL CLAIMS

#### TPOLOGY



#### FORMULATION



### CONCLUSIONS

- Only 26% of BC had good nutritional quality (Nutri-Scores A or B).
- XP had the highest Nutri-Scores A or B percentage (90%). All flavored and CXT had the lowest ( $\geq 9\%$ ).
- All SPS and C&L have good nutritional quality.
- Most nutritional claims were found on CF, XP, and XTF.
- *Low-fat*, *sugar*, *salt*, and *protein* claims prevailed on unflavored BC.
- *Fat-free*, and *fiber* claims prevailed on flavored BC.
- Most claims prevailed in SC, but *fiber* ones were mainly on MS.
- Literature shows that red and black rice, purple corn, algae, silkworm pupae powder, and butterfly pea flower can enhance fiber and protein contents, improve physicochemical and sensorial properties, increase antioxidant activity and phytochemical contents.

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