

**Poster Topical Area:** Nutritional Microbiology

**Location:** Auditorium

**Poster Board Number:** 230

## **P22-001 - Energy and food groups intake relate differently with the abundance of main gut bacterial families in school-aged children**

 Monday, Jun 11  8:00 AM – 3:00 PM

**Background:** Studies in adults and children have revealed that western and plant-based diets are associated with different bacterial abundances in the gut microbiota. There is lack of evidence regarding which nutrients and group foods are related with specific bacterial groups. The aim of this study is to identify differences in the microbiota at family level among children according to their dietary intake.

**Methods:** A cross-sectional study was conducted with 93 school-aged children ( $8.4 \pm 1.6$  y). Anthropometric (weight, height and waist) variables were measured. Diet was assessed using a 24 h recall and a food frequency. DNA was extracted from stool and the abundance of Bacteroidaceae-Porphyromonadaceae-Prevotellaceae (BPP), Lactobacillaceae (LAC), Enterococcaceae (ECC) and Lachnospiraceae-Ruminococcaceae (LRC) were determined by qPCR. Linear regressions and general linear model were performed to identify the associations between diet and bacterial abundances.

**Results:** Higher energy intake (B: -0.002; 95% CI: -0.004, -0.0002;  $p=0.027$ ) and higher fat intake (B: -0.042; 95% CI: -0.08, -0.005;  $p=0.026$ ) were significantly related with lower ECC abundance. Higher intake of animal products was associated with higher abundance of BPP (B: 0.006; 95% CI: 0.0006, 0.0125;  $p=0.032$ ), ECC (B: 0.01; 95% CI: 0.0006, 0.02035;  $p=0.038$ ) and LRC (B: 0.007; 95% CI: 0.0002, 0.0135;  $p=0.044$ ). High sugar intake (B: -0.012; 95% CI: -0.02, -0.005;  $p=0.002$ ) and high cereal intake (B: -0.006; 95% CI: -0.013, -0.0004;  $p=0.036$ ) was associated with lower ECC abundance. High dairy foods intake was associated with lower LAC abundance (B: -0.007; 95% CI: -0.012, -0.002,  $p=0.007$ ). An interaction between carbohydrates and fat intake was observed (F: 5.83;  $p=0.018$ ) for ECC abundance, carbohydrates and protein (F: 4.9;  $p=0.03$ ) for LRC, protein and fat (F: 4.3;  $p=0.04$ ) for LRC abundance and carbohydrates, fat and protein (F: 5.9;  $p=0.016$ ) for LRC abundance.

**Conclusion:** Energy, fat, sugar, cereal, animal products and dairy foods intake relate differently with the abundance of main bacterial families of the gut microbiota in school-aged children. It is important to consider these groups for the microbiota modification in further interventions.

## Presenting Author

### Tania Aguilar

Student

Universidad Autónoma de Querétaro

Querétaro, Queretaro de Arteaga, Mexico

**CoAuthors:** Gerardo Nava – Autonomous University of Queretaro; Andrea Olvera – Autonomous University of Queretaro; Gerardo Zavala – VU Amsterdam University; Dolores Ronquillo – Autonomous University of Queretaro; Maria del Carmen Caamaño – Autonomous University of Queretaro; Jorge Rosado – Autonomous University of Queretaro; Olga García – Autonomous University of Queretaro