

Discovering the role of in-season (poly)phenol consumption on possibly associated metabolic phenotype

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STATE OF THE ART

(Poly)phenol **preventive role** in chronic non-communicable disease development has been addressed in many studies. However, **(poly)phenol exposure** remains an issue since it has been usually evaluated through **dietary tools** validated for other purposes.

Seasonal consumption of (poly)phenol-rich fruits and vegetables exposes consumer to different intake of bioactive compounds. Moreover, (poly)phenol metabolism and bioavailability in humans are affected by individual characteristics, such as **microbiota composition**, determining possible different **metabolic phenotypes**.

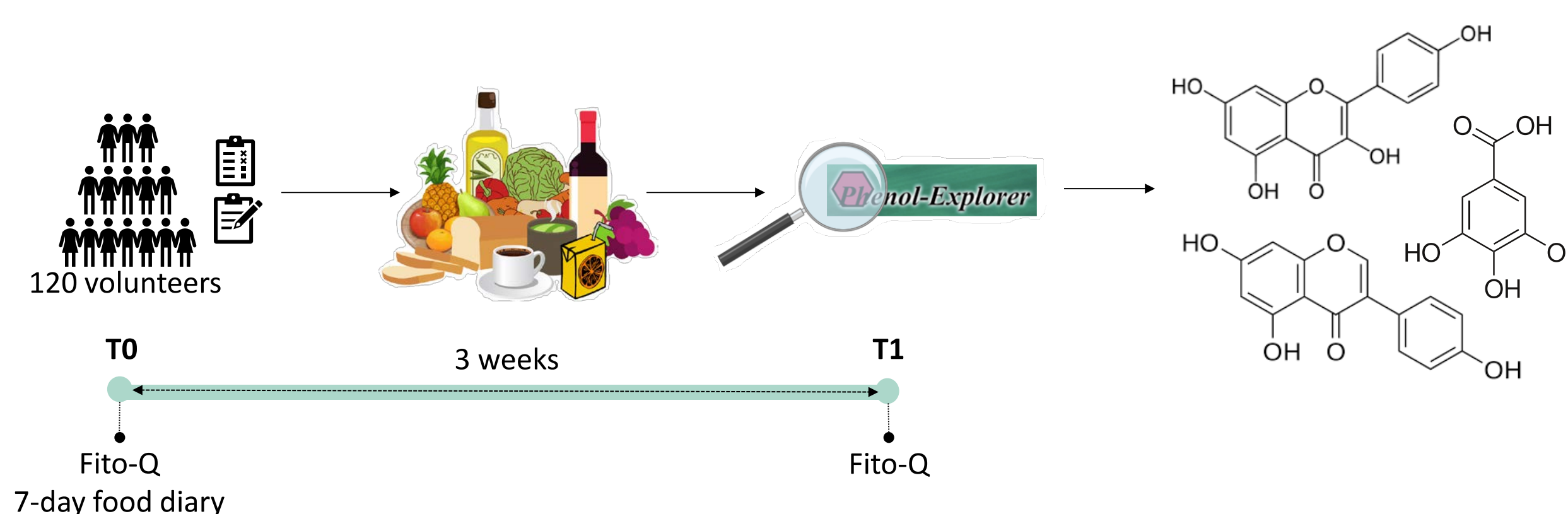
Nowadays, there is a **lack of knowledge** of the effect of in-season dietary choices on the gut microbiota composition, which may in turn influence the presence of circulating metabolites of bioactive compounds, as (poly)phenols, recognized to positively influence health.

PhD THESIS OBJECTIVES

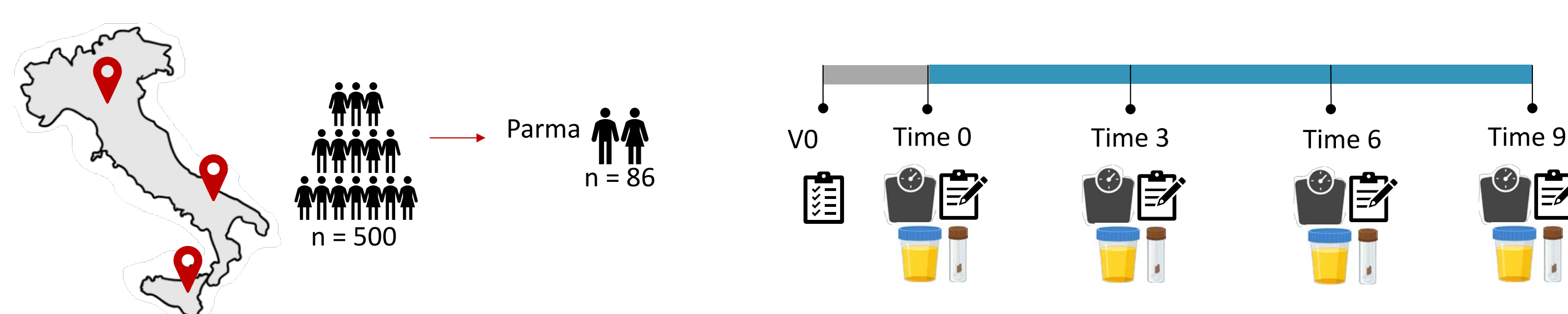
The main objectives of this PhD thesis project are:

- The **validation** of a new FFQ (**Fito-Q**), developed specifically to evaluate (poly)phenol consumption in the Italian population;
- Discovering the role of **in-season consumption** of (poly)phenol-rich foods and beverages in influencing (poly)phenol-related catabolites, which directly depends on possible different phenolic metabolic phenotypes (**metabotypes**).

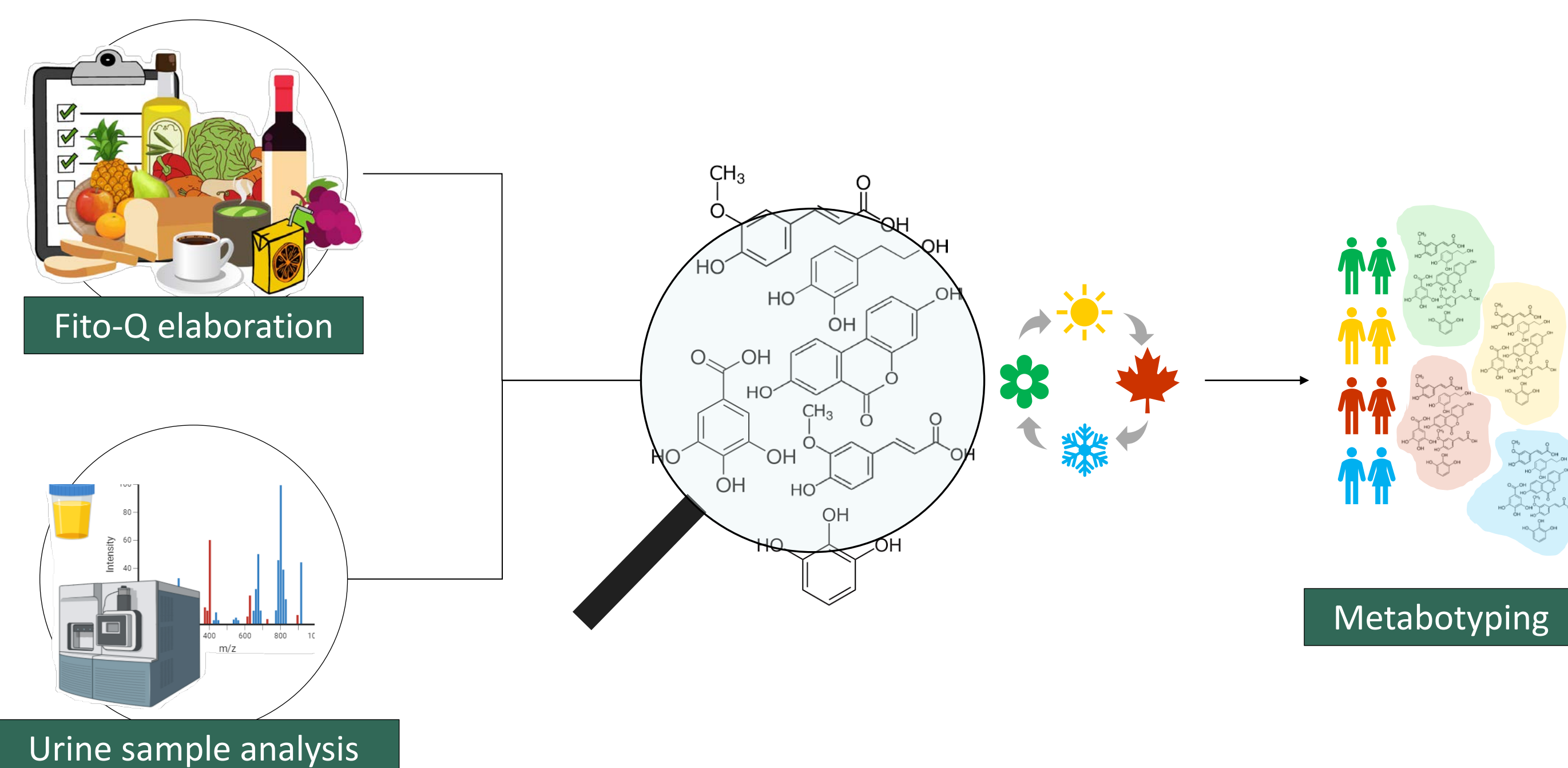
Fito-Q validation



9-month observational study



Seasonal (poly)phenol intake evaluation



PhD THESIS MILESTONES

Activity Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A1) FFQ (FitoQ) validation																									
1) Volunteer recruitment																									
2) (Poly)phenol intake evaluation																									
3) Statistical analysis																									
A2) Observational study																									
1) Volunteer recruitment																									
2) Dietary habits and anthropometric data assessment																									
3) Urine sample collection																									
A3) Urinary (poly)phenol-derived metabolite evaluation																									
1) FitoQ elaboration																									
2) Urine sample analysis																									
A4) Analysis and data integration																									
1) Statistical analysis																									
2) Metabotyping																									
3) Metabotype association																									
A5) Thesis and Papers Preparation																									

REFERENCES

Arola-Arnal A. et al., Chrononutrition and polyphenols: Roles and diseases. *Nutrients*, 2019 (Vol. 11, Issue 11). MDPI AG; Del Bo C. et al., Systematic Review on Polyphenol Intake and Health Outcomes: Is there Sufficient Evidence to Define a Health-Promoting Polyphenol-Rich Dietary Pattern? *Nutrients*, 2019, 11(6); Favari C. et al., Factors driving the inter-individual variability in the metabolism and bioavailability of (poly)phenolic metabolites: A systematic review of human studies. *Redox Biology*, 2024 (Vol. 71). Elsevier B.V; Ziauddeen N. et al., Dietary intake of (poly)phenols in children and adults: cross-sectional analysis of UK National Diet and Nutrition Survey Rolling Programme, *European Journal of Nutrition*, 2008-2014, 58(8), 3183–3198.