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Introduction: The foods we produce and consume may affect our health and well-being, but for sure have a great impact on the environment. Plant-based foods have been described as protective against chronic diseases and, at the same time, share a remarkably lower environmental impact. In this framework, data are emerging on how dietary models may affect the environment, with plant based food diets clearly emerging as advantageous. However, there is a lack of information about the real impact of specific food choices on parameters associated to environmental impact.

Objectives: Determining the environmental impact of omnivorous, vegetarian, and vegan diets in the real-life context of an Italian small cohort of volunteers.

Method / Design: In an Italian observational multicentre cohort study, 153 volunteers were enrolled (51 omnivorous, 51 vegetarians and 51 vegans, matched for gender, age, BMI and smoking habits). Food intake was monitored with a 7 days dietary record. The European Institute of Oncology database was used to calculate nutritional values. The Barilla Center for Food and Nutrition database was used to evaluate environmental impacts, taking into account three indexes: carbon footprint, water footprint, and ecological footprint.

Results: The qualitative analysis of food patterns stressed the creation of well-matched diet groups based on their self-reported eating habits. Energy intakes were similar among the three diets. The omnivorous choice generated significantly worse carbon and ecological footprints ($p < 0.001$) than other diets, whereas the water footprint was significantly lower for the vegetarian choice ($p < 0.001$).

Conclusions: A plant-based diet, especially the ovo-lacto-vegetarian approach, represents a clear environmental advantage. To reach an environmentally sustainable scenario, animal-based foodstuffs should be partially replaced with legumes, cereals, fruits and vegetables, in particular in season and locally grown food, according to nutritional guidelines.

Keywords: (maximum 5): Environmental impact; Plant-based diet; Sustainable diet; Dietary record.

149/822. Mycological status of marama beans (*Tylosema esculentum*)

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Introduction: Marama bean (*Tylosema esculentum*) is a candidate for domestication in arid zones. Indigenous to Kalahari regions of Southern Africa, it thrives in low nutrient and low moisture soils. Seeds exhibit high oil (up to 48%) and protein (up to 42%) comparable to peanut and soybean respectively. Potential pathogens that affect leaf or grain production are of concern, particularly post-harvest contamination of grain.

Objectives: The aim of the project is a complete description of the fungal status of marama beans.

Method / Design: Previous work has shown the most important fungal contaminants belong to *Alternaria*, *Penicillium* and *Fusarium*, emphasis will be on these. Characterization of the fungal population of marama beans will give a complete picture about the mycological contamination of marama beans of different locations. Single spore colonies of the strains will be isolated and identified to the species level by morphological means and ITS sequencing. Matrix-assisted laser desorption ionization–time of flight mass spectrometry (MALDI-TOF MS) will also be applied. Gene expression studies will be applied to analyse the influence of external parameters by Real Time PCR with several mycotoxin biosynthesis genes. Analysis of the secondary metabolite profile of marama beans to determine influence on growth and biosynthesis of mycotoxins with emphasis on polyphenolic compounds will be determined by GC x GC/MS. Protein profiling will help to identify the changes induced by the potentially mycotoxigenic species.

Results: It can be expected a complete description of the mycological status of marama beans can be worked out. Furthermore, knowledge about the frequency of occurrence of potential mycotoxin producing species will be generated.

Conclusions: This information can be used to develop strategies for the prevention of mycotoxin biosynthesis in a HACCP context.

Keywords: (maximum 5): Marama bean, mycology, mycotoxins, pathogens

149/841. The effect of comercial starter culture addition on biogenic amines content in fermented sausage *Petrovská klobása*