SCIENTIFIC REPORT - SHORT TERM SCIENTIFIC MISSION

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Within the framework of the PhD project entitled "*Phaseolus vulgaris* L.: A contribution for the valorization of Portuguese varieties", a short term scientific mission (STSM) from the COST Action POSITIVe was developed with the main goals of studying inter-individual differences in phenolic compounds metabolism after consumption of a standardized portion of a Portuguese cooked common bean variety. The tasks were conducted in the Division of Cardiology, Pulmonology and Vascular Medicine, University of Düsseldorf, under the supervision of Dr Ana Rodriguez-Mateos and Dr Rodrigo Feliciano.

The importance of common beans in a daily balanced diet is well recognized and phenolic compounds can be pointed as important players in chronic disease (e.g diabetes, cardiovascular diseases and colon cancer) prevention. However, Portuguese common bean varieties are understudied and there is a lack of knowledge regarding phenolic compounds metabolites after ingestion of cooked common beans. In order to overcome such gap of knowledge, plasma and urine of seven different Portuguese volunteers were collected at different time points and analysed in Agilent technologies 6550 iFunnel Q-TOF LC/MS equipment after microSPE (micro Solid Phase Extraction). Quantification of phenolic compounds was made by comparison with retention time and mass-to-charge ratio of standard compounds using calibration curves for the standards. Optimization of the method was performed and calibration curves of the standards prepared in water were compared to calibration curves prepared in plasma and urine at baseline level (time 0, fasting period), following the same methodology applied for plasma and urine samples. To confirm identification of phenolic compounds in common bean samples and corresponding metabolites in plasma and urine, some selected samples were spiked with standard compounds' mixture and compared with non-spiked samples. Furthermore, fragmentation assays were also carried out to confirm identification of some metabolites. The treatment of results is ongoing and the final results will be statistically analysed using multivariate data analysis.

The obtained results will for the first time elucidate inter-individual variability of metabolism in what regards phenolic compounds obtained after consumption of cooked common beans.

Supervisors' signature from Host institution

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Dr Rodrigo Feliciano, _____