

## SHORT TERM SCIENTIFIC MISSION (STSM) – SCIENTIFIC REPORT

The STSM applicant submits this report for approval to the STSM coordinator

**Action number: FA1403**

**STSM title: Preparation of a manuscript on the factors affecting inter-individual variability in anthocyanin bioavailability**

**STSM start and end date: 12/07/2018 to 14/08/2018**

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**Host: Dr Sonia de Pascual-Teresa**

**Host Institution: Institute of Food Science, Technology and Nutrition (ICTAN-CSIC)**

### PURPOSE OF THE STSM

Anthocyanins are known for their anti-inflammatory, anti-diabetic, antioxidant activities and promoting health effects. Despite all of these positive effects, anthocyanins bioavailability is really restricted. In addition to this, researches revealed that after the intake of anthocyanins their bioavailability showed huge variability between individuals. A lot of factors (food matrix, enzymes, microbiota etc.) that cause this variability and the mechanisms of effect of these factors need to be elucidated. Working Group 1 of the COST Action FA1403 has been working on to clarify this topic by publishing a review. So, the purpose of this Short Term Scientific Mission (STSM) was the preparation of a manuscript on the factors affecting inter-individual variability in anthocyanin bioavailability and clarify this topic hereby this paper. In this context we aimed at manage a bibliographical search in the different databases available from ICTAN, select the papers related to the topic, help in writing the final version of the manuscript on the factors affecting inter-individual variability in anthocyanin bioavailability, create figure that explain Adsorption, Distribution, Metabolism and Excretion (ADME) effect of anthocyanins and references list of these manuscript. This STSM was planned to contribute to Working Group 1 of the COST Action FA1403: a "Preparation of a manuscript on the factors affecting inter-individual variability in anthocyanin bioavailability".

### **DESCRIPTION OF WORK CARRIED OUT DURING THE STSM**

The STSM work on to create a review of anthocyanin bioavailability, variety of this bioavailability between humans and factors affecting that cause of this variety. This paper has been generated by Working Group 1 of the COST Action FA1403 and titled: “ A review on the factors affecting inter-individual variability in anthocyanin bioavailability.”. I was contributed to some part of this paper, according to the frame of this work. During this STSM, I:

- Searched articles on databases with relative keywords
- Chose relative ones and rejected irrelevant articles
- Wrote about relative articles in appropriate part of review
- Created figure of showing ADME of anthocyanins using Chemdraw
- Contributed the tables of enzymes effect and microbiota effect on bioavailability of anthocyanins
- Contributed to writing of methodology part
- Created references list.

### **DESCRIPTION OF THE MAIN RESULTS OBTAINED**

The STSM contributed to the COST Action FA1403 by completing deficiencies and adding new and necessary parts to paper during working. After the searching databases with appropriate keywords 1319 papers were found in Web of Science and 1426 papers were found in PubMed between years 2000-2018. Then I eliminated papers that were irrelevant duplicates and conflicting ones. After the elimination I decided to add 24 new papers in our work. I wrote about these papers in our review. Besides of these 24 articles I wrote about 11 another papers in this review. These 11 articles were found before this STSM but were not explained in this review. Another issue has to be completed was make a figure of showing ADME of anthocyanins. So I created figure that will be beneficial for this review, by Chemdraw. Additionally, I added some new resources to the tables of enzymes and microbiota effects on the bioavailability of anthocyanins in order to enrich both tables.

Before this STSM, this review didn't have methodology part that is required. So I added one more part which mentioned about how did we search on databases, how many papers we found and which way we used to selecting of papers. Eventually, I created references list containing the references found in the article. Then I arranged the format of this list accordingly the journal that we thought to send this review.

All of this works were carried out under the guided of my supervisor Dr. Sonia de Pascual-Teresa;thus, I would like to thank Dr. Sonia de Pascual-Teresa for her expert advices, all of helps and encouragement throughout this project.

**FUTURE COLLABORATIONS (if applicable)**

This review, can contribute to the preparation of new projects and collaborations to explore the ways which can provide better bioavailability of anthocyanins in individuals by explaining the reasons for the variability of anthocyanin concentrations in human tissues. It may also be a resource of the future works that will be relevant to this topic.

We expect to submit the paper in the next month after few additions and corrections.