

Master course in Applied Human Nutrition, Oxford Brookes University

Project: 453

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The course in general

The “Master of Science in Applied Human Nutrition” at Oxford Brookes University included six taught modules and the research project. Taught modules covered a broad range of topics in human nutrition and food science with a main focus on public health nutrition interventions in the UK and in developing countries. We also had the chance to discuss current research topics with experts from other universities and get insight into their research fields, such as nutrient profiling of foods, sedentary behavior, probiotics or new approaches for type 2 diabetes treatment. An important part of all assessments was the critical analysis of research papers and developing skills to review and write own research articles.

Research Project

The research project was submitted in the form of a manuscript as for submission in an academic journal and was worth 1/3 of the final mark, together with a literature review on the same topic. In my project I wanted to test whether the antioxidant content of commercially available, fresh fruit juices (orange, grapefruit, red and purple grape) changes during refrigerated storage, once the juice was opened.

Four chemical methods were used for comparison because no standard method exists. It was hypothesized that colour pigments in the juices affect results, as these methods base on colour change upon reduction of the chemicals by the antioxidants. An in vitro digestion procedure was additionally made to measure if antioxidant content changes during digestion.

The assays provided contradictory results on the influence of five days refrigerated storage on antioxidant content of fruit juices. Methods only measured comparable results for orange juice, where antioxidant content remained stable. Colour pigments did not affect measurements in this study, but colour seems to affect results in the sense that dark coloured juices contain more complex antioxidant compounds, which can change their chemical structure during refrigerated storage and in vitro digestion and thus lead to inaccurate measurements. Subjecting the juices to an in vitro digestion procedure decreased their antioxidant content, except for orange juice where it stayed constant, suggesting that the bioaccessibility of some antioxidants in the other juices is reduced at the high intestinal pH. However, more studies are needed to confirm this, as results are not fully in line with previous research. Further research should also aim at defining the most suitable assay for the analysis of antioxidant content during storage, and the industry should be aware of inconsistencies between different assays when analysing antioxidant content of their products.