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Antioxidant Interactions Between Polyphenols and Other Bioactive Compounds

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During the recent years, there has been significant growing customer interest in healthy nutrition and natural foods without artificial additives. On the other hand, it is still observed growing demand for dietary supplements and functional foods. This results in the appearance of the food market with all sorts of pro-health additives to improve the quality of the offered product. The problem is that not every addition has a positive effect on the quality of the product, which is particularly visible in the antioxidant capacity of the tested food samples. The aim of this work was to evaluate the antioxidant interactions between the main bioactive compounds present in food such as: polyphenols, vitamins B, selenium compounds and others to predict their impact on antioxidant activity of the sample. We focused on samples that are well known and often consumed such as green and black tea, beetroot juice This was done using well known antioxidant assays such as DPPH assay, CUPRAC or Folin-Ciocalteu method.

The obtained results were analyzed using isobolographic analysis, which is dedicated to study the interactions between the pharmaceuticals. There can be three possible effects observed: synergistic, antagonistic and additive. In case of our study there was no additive effect observed. In almost every case the calculated value of antioxidant capacity measured for the mixture of the studied compounds was significantly lower that the calculated (predicted one). This highlights the importance of choosing the right combination of compounds for synergism, as well as to avoid antagonism. follow-up appointment had a 43% lower likelihood of readmission compared to patients who did not receive an appointment (OR=0.57; p=0.03). Additionally, patients who received a scheduled follow-up with a Primary Care Provider had a 53% lower likelihood of Readmission compared to patients who did not receive a scheduled appointment (OR=0.47; p=0.01).

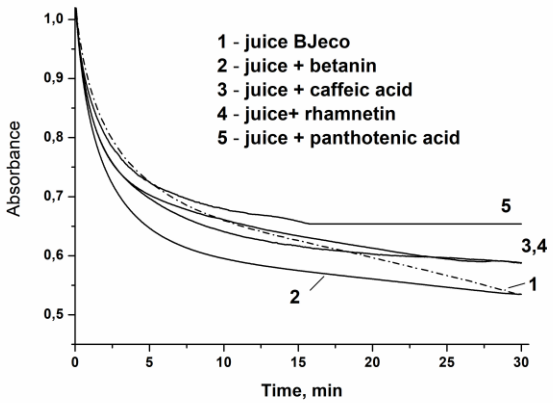

Fig.1. The kinetic curves for DPPH radical scavenging by beetroot juice from ecological cultivar (BJeco) with different additives (concentration of each 10 mg L^{-1}). The measurements were carried out at λ=539 nm.