THE ANTIOXIDANT ACTIVITY OF FOOD SAMPLES BY MEANS OF A MICROPLATE CHEMILUMINESCENT METHOD

S. Girotti¹, F. Fini¹, L. Bolelli¹, G. Arfelli², T. Gallina Toschi², L. Savini³, R. Beozzo³

¹ Istituto Scienze Chimiche, Università di Bologna, Via San Donato 15, 40126 Bologna, ITALIA
E-mail: girotti@biocfarm.unibo.it
² Dipartimento di Scienze degli Alimenti, Università degli Studi, via San Giacomo 7, 40126 Bologna, ITALIA
³ Cooperativa “Le Rocche Malatestiane”, Rimini, ITALIA

Antioxidant capacity of food is very important being strictly related to the prevention of some human diseases. A method for the antioxidant capacity, based on the ability of a sample to inhibit the radical production of a chemiluminescent reaction, was applied to different food samples. The assay proved to be precise, accurate, quick, and cheap.

Wine, oil, beer, and tea samples were tested. The antioxidant capacity of wine proved to be a function of grape variety, environment and winemaking technology. In particular Cabernet Sauvignon and Montepulciano showed the greatest antioxidant capacity. In oil, it was possible to apply the assay directly to the sample without any dissolution or extraction step, then comparing the obtained values to the polyphenols content. For tea, the antioxidant capacity was higher in homemade tea prepared by infusion than in canned commercial tea. For beers, it was related to the kind and the quantity of the raw materials used to brew the beer and the highest values were shown by black beer.

The chemiluminescent assay can therefore be easily applied to a variety of samples to study the effects of production and conservation technologies and to obtain information on the antioxidant potentialities of different kinds of food.