

New approach of anti-oxydant capacity by electrochemical analysis

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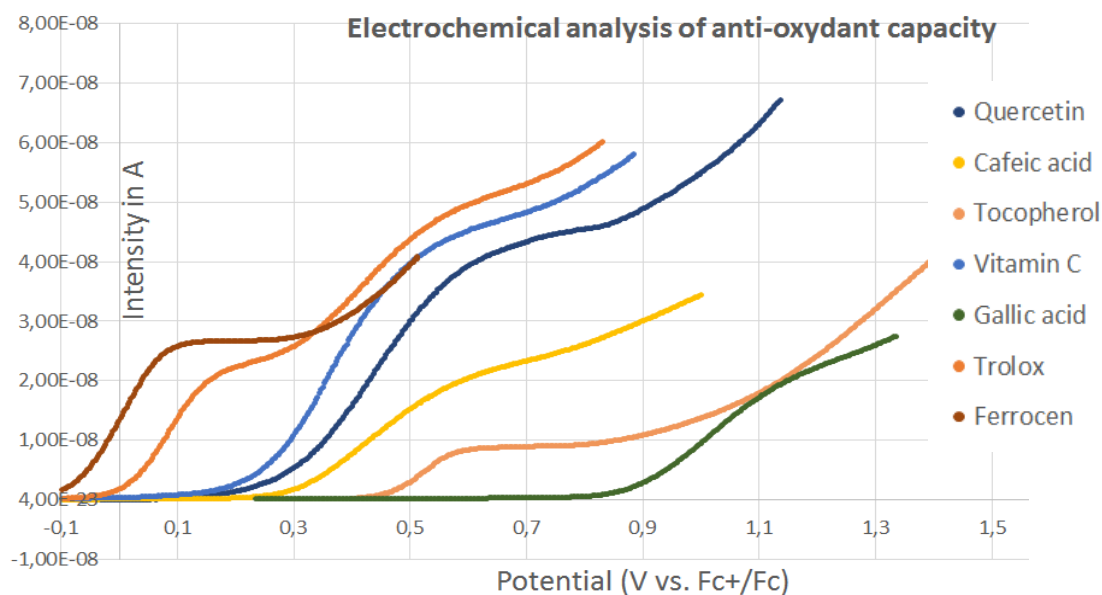
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OBJECTIVE: The purpose of this study is to explore a new methodology to measure anti-oxydant capacity of synthetic molecules as well as natural extracts, for some commonly used in cosmetic formula.

METHODS: The anti-oxydant capacity of a series of compounds has been determined by DPPH° methodology as well as electrochemically speaking, using a microelectrode [1]. This one is a very small surface of Pt electrode (\varnothing 20 μ m) used in electrochemistry. Compared to conventional electrodes, of larger size, the currents measured on microelectrode are lower and the thickness of the diffusion layer is also lower, leading to a stationary current. By electrochemistry, significant results characterizing the anti-oxydant properties are shown.

RESULTS: All electrochemical measurements were related to ferrocene/ferrocenium and showed interesting correlation to DPPH° analysis. This will be discussed with several compounds.



CONCLUSION: Electrochemical analysis of anti-oxydant capacity provides qualitative information that are complementary to DPPH° study. This use of microelectrodes could find applications in captors.

[1] A-M. Gonçalves, C.Mathieu, M. Herlem, A. Etcheberry, J. of. Electroanal. Chem., 477 (1) (1999) 140

Keywords

Electrochemical, Anti-Oxydant, Microelectrode.