

Redox Behavior and Radical Scavenging Capacity of Hepatoprotective Nutraceutical Preparations

Douglas Vieira Thomaz^{1,*}, Pierre Alexandre dos Santos¹

¹ Federal University of Goiás, Faculty of Pharmacy. 240 st., Leste Universitário Sector, Goiânia, Goiás State, ZIP: 74605-170, Brazil

Article Information

Identifiers and Pagination:

Year: 2021

Volume: 2

Issue: 4

First Page: 312

Last Page: 318

Publisher ID: [CNT-2-12](#)

DOI: [10.2174/2665978602666210615110653](#)

Article History:

Received Date: 13/02/2021

Revision Received Date: 05/04/2021

Acceptance Date: 28/04/2021

Electronic publication date: 2021

Copyright: 2021 Bentham Science Publishers

Correspondence: Address correspondence to this author at the Federal University of Goiás, Faculty of Pharmacy. 240 st., Leste Universitário Sector, Goiânia, Goiás State, ZIP: 74605-170, Brazil;
Email: douglasvthomaz@gmail.com

Background: Over-the-counter hepatoprotective nutraceuticals are highly commercialized preparations worldwide. However, their alleged antioxidant capacity and health benefits are still not fully understood.

Objective: This work showcased the first investigation of the redox behavior of hepatoprotective nutraceuticals by spectrophotometric and electrochemical approaches.

Method: The samples were segregated into two groups, namely: A, B, and C based on isolated compounds (IC); and D, E and F based on standardized herbal extracts (SHE).

Results: Results evidenced that IC showcase similar response and distinctions could be attributed to varying concentrations of choline. In SHE, the slopes showcased superimposition due to the presence of *Peumus boldus*. The electrochemical assays showcased that samples A and C exhibited a single anodic peak at $E_{p1a} \approx +0.7$ V, which could be attributed to the oxidation of methionine; while samples D, E and F, showcased two anodic peaks at $E_{p1a} \approx +0.35$ V and $E_{p2a} \approx +0.7$ V, suggesting the oxidation of phenolic and amine moieties respectively.

Furthermore, the first two principal components explained 84.8% of all variance in the model, thereby suggesting statistical reproducibility.

Conclusion: This work showcased the first investigation of the redox behavior of hepatoprotective nutraceuticals, thereby shedding light on their antioxidant capacity and physical-chemistry.

Keywords: Thermodynamics, kinetics, antioxidant capacity, natural products, free radical, hepatoprotective nutraceuticals.