

**International Society of Antioxidants**

**HOW TO EVALUATE  
OXIDATIVE STRESS &  
ANTIOXIDANTS ACTIVITIES?**

**From Initiation to Improvement...**

**WORKSHOP**

**June 22, 2022**



[www.isanh.net](http://www.isanh.net)

# How to Evaluate Oxidative Stress & Antioxidants Activities?

June 22, 2022

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This year again, the International Society of Antioxidants (ISANH) will be organizing a workshop dedicated to **Oxidative Stress and Antioxidants - How to Evaluate Oxidative Stress & Antioxidants Activities?**

During this workshop, an important part will be dedicated to the presentation of the all methods of evaluations of antioxidants in food, cosmetics and food supplements (polyphenols, catechins, phenolic acids, etc.).

## Among the novelties for 2022:

- The different sources of natural antioxidants, and different techniques for their extraction, will be presented
- Update on the techniques for measuring antioxidant power
- The natural antioxidant defenses (simple molecules, enzymes, ...) as well as the use of antioxidants in vivo as means of prevention or cure will be described
- Several extraction techniques in different industries will be highlighted

## Special Session: Methods for evaluating antioxidant activity in humans

Presentation of methods for measuring protein alteration (glycation / carbonylation, etc.), alteration of lipids (lipoperoxidation) and DNA (8-OH-guanosine, etc.).

## Discussion and Critics on many methods used to evaluate antioxidant capacity

At present, there are different methods for evaluating antioxidant capacity and oxidative stress. However, these methods are not standardized and can vary greatly from one laboratory to another.

## Come with your project!

Do you have a product, an ingredient, or a food supplement...? Do you want to measure its antioxidant capacity? Come with your project, we will discuss it and offer you the best suitable method.

This workshop is intended for anyone who wish to improve their skills and knowledge in the field of oxidative stress and antioxidants.

Looking forward to meeting you very soon, please don't hesitate to contact us for any further information.

Best regards,



**Dr. Ginette Deby-Dupont**

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## For Information & Registration

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# How to Evaluate Oxidative Stress & Antioxidants Activities?

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## Program

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14:00 Welcome of Participants

14:05 Introduction of the workshop

### Session 1 - Oxidants and antioxidants: physicochemical reminders

- Reactivity of oxygen with respect to living matter and the need for catalysts
- Free radical-oxidant distinction
- The cascade of oxidants derived from O<sub>2</sub>
- The redox potential
- Mode of action of an antioxidant on the production of activated oxygen species (Reactive Oxygen Species: ROS) - stoichiometric action versus anticatalytic action
- Lipoperoxidation mechanisms

15:30 *Break*

### Session 2 - What are the different methods of dosage of antioxidants?

15:45 Presentation of the most used methods, their main characteristics, advantages and disadvantages

- Synthetic antioxidants: history of their development, use in vitro, in vivo
  - Natural antioxidants: sources and main families
- Some data on extraction, purification and quantitative measurement techniques
- Qualities necessary for an antioxidant
- Techniques for measuring antioxidant power
  - Chemical methods (spectrophotometry, fluorescence, chemiluminescence)
  - Ex vivo methods (cell cultures, isolated blood cells, tissues and biological fluids)
  - Anti-catalytic methods
  - Combined methods
  - Lipoperoxidation measurement methods
  - Electrochemical methods

### Presentation of practical cases

- *How to measure the antioxidant activity in food?*
- *How to measure the antioxidant activity in food supplements?*
- *How to measure the antioxidant activity in cosmetic products?*

Practical data (alphabetical index and table of the different methods, table of fluorescent probes, table of scavengers used in EPR)

### Session 3 - Oxidants and antioxidants in vivo

- Sources of ROS in vivo (mitochondria, phagocytes, others, etc.)
- Natural antioxidant defenses (simple molecules, enzymes, etc.)
- Oxidative stress and the measurement of its markers
- Action of antioxidants in vivo: direct and indirect effects
- Preventive or curative use of antioxidants in vivo
  - Examples of studies in humans (cancerology, cardiology, etc.)
  - Examples of animal studies
- Conclusions of in vivo studies: effects discussed and why
  - Bioavailability (example of polyphenols)
  - Targeting and reaction kinetics
  - Monitoring of effects (which parameters to measure?)

### 17:20 – 18:00 Discussion

Do you have any questions? Come with your project! We will discuss it and we will give you all the keys and supports.

We will prepare an annex with protocols related to oxidative stress & antioxidants evaluations, methods, and technics you need in your future study:

- *Oxidants and antioxidants: physicochemical reminders*
- *Methods of measuring & evaluating an oxidative stress and antioxidants activities*
- *Evaluation of antioxidant activity in different matrices - practical cases*
- *Evaluation of antioxidant capacity in vivo: measurement of markers of oxidative stress*
- *Flavonoids, flavonols, anthocyanidins, isoflavones, phenolic acids, etc.*
- *Useful Publications*

### 18:00 End of the workshop

## Registration

You can register to the Antioxidants workshop alone, but you also have the option to register for both our workshop and congress, Paris Redox 2022, at the same time.

You can find more information about registration packages [here](#).

## Who Should Attend ?

Are you a general practitioner, biologist, geneticist, researcher in oncology, neuroscience and pediatrics, or metabolic diseases? Research director, R&D director, engineer, research assistant, or business leader? You want to learn more about oxidative stress & antioxidants, their key roles in the cellular metabolism, last analytical tools and methods.

## Teaching resources

- Presentation support given to participants
- Presentation proposed by the speaker via Power Points
- Q&A session with all participants

## Workshop Report & Recorded video

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International Society of Antioxidants

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Recorded Workshop + Report

If you couldn't join the live workshop, you can still watch the recorded version of the Workshop of 4h30 minutes and get the workshop report in PDF format.

You can [contact us](#) for more information about this process.